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COMMERCIAL FISHERIES REVIEW

A review of developments and news of the fishery industries
prepared in the BUREAU OF COMMERCIAL FISHERIES.

Joseph Pileggi, Editor
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EFFECT OF RADIATION PASTEURIZATION ON THE STORAGE LIFE AND ACCEPTABILITY OF SOME NORTH ATLANTIC FISH

By Joseph H. Carver* and Maynard A. Steinberg**

ABSTRACT

Screening studies were performed on raw and on blanched cod, pollock, whiting, and butterfish and on raw flounder irradiated at pasteurization doses ranging from 116,500 to 1,860,000 rads.1/ Although some samples were acceptable when irradiated at the higher dosage level, those samples that were irradiated at levels of 465,000 rads and lower had greater acceptability.

Storage life studies at 35° F. were performed on raw and on blanched cod fillets and dressed butterfish and on raw pollock that had been irradiated at levels of 232,500 and 465,000 rads. In addition, raw pollock was irradiated at a level of 930,000 rads. The storage life extension of the irradiated fish over that of the unirradiated fish stored at the same temperatures was as follows: butterfish--about three times; cod--about two times; and pollock--no appreciable increase. Blanching did not increase the storage life or improve the acceptability of irradiated butterfish and cod. Deep-fat frying considerably increased the acceptability of raw, irradiated cod and pollock.

INTRODUCTION

Considerable literature exists on the preservation of meats, fruits, and vegetables by means of ionizing radiation, but relatively little information has been published on the responses of fishery products to this form of preservation. A study of the effect of radiation on the chemistry and acceptability of southern oysters has been reported (Gardner and Watts 1957). No definite conclusions were made on the suitability of this technique as it affects acceptance of the product. Low levels of cathode-ray radiation were applied to haddock fillets on a study (Nickerson, Lockhart, Proctor, and Liciardello 1954) of the effects of this treatment on the chemistry and flavor of the product, but storage periods were of relatively short duration. In another study (Nickerson, Proctor, and Goldblith 1956) cod cakes and halibut steaks were treated with cathode rays to determine the effect on flavor. This also was a relatively short-term study. A report has been made on the acceptability of some irradiated foods, including had-

Fig. 1 - Preparing sample of irradiated fish for testing by the taste panel.

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1/A rad is the quantity of ionizing radiation which results in the absorption of 100 ergs per gram of irradiated material.

dock, when incorporated into complete menus (McGary, Shipman, and Bernstein 1956). In this case too, holding times were relatively short.

Iced or refrigerated raw fish have a shelf life of 7 to 15 days. Irradiation offers a potential means of considerably extending this period at storage temperatures of 32° to 45° F. when pasteurizing doses are used. Extension of storage life at ambient temperatures may also be realized when the level of radiation applied is sufficient to result in sterilized products.

OBJECTIVES

The present study was undertaken to determine the effect of pasteurization by irradiation on the useful refrigerated storage life at 35° F. of several commercially-important species of fish caught in North Atlantic waters. The study was divided into two phases.

Phase one consisted of a screening study to determine the organoleptic acceptability of irradiated products after refrigerated storage of not more than a few days.

Phase two consisted of storage-life determinations of samples held at 35° F. after being irradiated at various levels--in one case up to the maximum level as determined in the screening process.

SCREENING STUDY

PROCEDURE: The products examined were raw flounder fillets (Pseudopleuronectus americanus), raw and blanched fillets of cod (Gadus morhua), pollock (Pollachius virens), and whiting (Merluccius bilinearis), and raw and blanched dressed butterfish (Poronotus triacanthus). The fish for the studies were caught 12 to 36 hours before they were received. In the laboratory they were packed in No. 2 C-enamel cans and sealed under a vacuum of 25 inches of water. The fillets that were blanched were heated to an internal temperature of 140° F. and were held at that temperature for 5 minutes and were then canned as described above. All samples were frozen to -20° F. They were then packed with dry ice and were shipped by air to and from the reactor site, where they were irradiated in the frozen state at levels ranging from 116,250 to 1,860,000 rads. On their return to the laboratory the frozen samples were held at 0° F. until they were submitted to the taste panel (fig. 1). This period did not exceed 10 days.

For initial sensory evaluation, the frozen samples were thawed within the cans in cold running water. The raw fish were cooked by being steamed for 20 minutes, and the blanched fish were cooked by being steamed for 15 minutes. Four samples were evaluated at each test. One sample was usually an identified unirradiated fresh control. The taste-panel consisted of 8 to 10 members of the laboratory staff. A hedonic scale ranging from 10 to 90 was used to score the irradiated products, which were evaluated on the bases of flavor, odor, texture, and appearance. A numerical score of 50 or above indicated a commercially-acceptable product.

RESULTS: The radiation dosages that resulted in organoleptically acceptable products for the fish tested are shown in table 1. An increase in dosage for any species frequently resulted in increased off-odors and off-flavors. Bleaching of the meat occurred in raw cod, pollock, black-

Table 1 - Irradiation Doses Resulting in Acceptable Cod, Pollock, Blackback, and Whiting Fillets, and Dressed Butterfish

Species	Maximum Dose Resulting in Acceptable Products		Dose Resulting in Products of of Greatest Acceptability	
	Raw Fish	Blanched Fish	Raw Fish	Blanched Fish
	(Rads)			
Cod	465,000	232,500	116,250	232,500
Pollock	232,500	930,000	232,500	232,500
Blackback	930,000	-	465,000	-
Whiting	116,250	232,500	116,250	116,250
Butterfish	697,500	930,000	232,500	232,500

Note: The irradiated fish were cooked in steam for taste-panel evaluation.

back, and butterfish, even at the lowest dosage employed (116,250 rads). Raw whiting exhibited a slight pink discoloration at the lowest dosage level, and this discoloration became more severe as the dosage level was increased. Blanching changed the discoloration pattern in that the meat of irradiated pollock, whiting, and butterfish became slightly gray.

STORAGE STUDY

PROCEDURE: Storage studies consisted of an examination of raw and blanched cod fillets, raw pollock fillets, and raw and blanched dressed butterfish. The fish were irradiated at levels of 232,500 and 465,000 rads except for one additional lot of pollock fillets that was irradiated at a level of 930,000 rads. Despite the finding that, with some species, irradiation at levels higher than 465,000 rads resulted in acceptable products, the relatively low levels of 232,500 and 465,000 rads were used because irradiation at these levels resulted in products of greater acceptability. Levels lower than 232,500 rads were not used because it was felt that they might not be sufficient to prolong the shelf life significantly.

The samples were prepared and shipped as was previously described in the screening study. After irradiation and return of the samples to the laboratory, they were thawed in air and stored at 35° F. Samples were prepared for evaluation by steaming and, in some cases, by deep-fat frying to determine the effect of cooking methods on acceptability. In all cases, unidentified, unirradiated controls were evaluated with the irradiated samples. These controls were usually stored in the frozen state. Where refrigerated, unfrozen controls were used, it is so noted in the tabulated data. The results of the evaluation studies have been tabulated in two ways in order to (1) reflect the over-all acceptability of the samples as arrived at by finding the mean of the total scores given to each sample for the four attributes examined and (2) to indicate as specifically as possible in which particular attributes there were significant differences between controls and experimental samples as a function of storage time and irradiation dose. For this latter purpose, rank score tables were used (Kramer 1956).

RESULTS: Butterfish: The data shown in table 2 indicate that raw butterfish irradiated at 232,500 rads and cooked in steam was acceptable for at least 49 days when stored at 35° F. The maximum commercial storage time in ice for this fish is about 14 days. The unirradiated controls used in these tests had a storage life

Table 2 - Taste-Panel Scores and Degrees of Difference Between Raw Unirradiated and Raw Irradiated Butterfish That Were Stored at 35° F. and Cooked in Steam

Storage Time	Control	Organoleptic Scores 1/									
		Samples Irradiated at 232,500 Rads					Samples Irradiated at 465,000 Rads				
	Mean Score	Mean Score	Appearance	Odor	Flavor	Texture	Mean Score	Appearance	Odor	Flavor	Texture
Days											
8	2/82.5	68.3	4/	4/	5/	6/	68.5	6/	4/	5/	6/
15	2/72.5	72.3	6/	6/	6/	6/	69.5	6/	6/	6/	6/
23	2/73.5	75.3	6/	6/	6/	6/	72.0	6/	6/	6/	6/
30	3/71.1	73.5	6/	6/	6/	6/	75.5	6/	6/	6/	6/
47	3/67.5	66.0	6/	6/	6/	6/	67.5	6/	6/	6/	6/
48	3/62.9	6/	6/	6/	6/	6/	66.0	6/	6/	6/	6/
49	3/74.3	73.0	6/	6/	6/	6/	56.7	6/	4/	4/	6/

1/Scores of 49 or less indicate poor quality, 50 to 59 borderline, 60 to 69 fair, 70 to 79 good, 80 to 89 very good, and 90 excellent.
2/Refrigerated controls stored at 35° F.
3/Frozen controls stored at 0° F.
4/Different from the control at the 5-percent level of significance.
5/Different from the control at the 1-percent level of significance.
6/Not significantly different from the control.

of 23 days. This long storage life was probably due to a very low initial bacterial load of the fish stored under essentially anaerobic conditions at 35° F. With respect to appearance, odor, and flavor, significant differences between the unirradiated controls and the samples irradiated at a level of 232,500 rads occurred only on the 8th day of storage. Samples irradiated at a level of 465,000 rads were significantly

different from the controls with respect to odor and flavor at both the 8th and 49th day of storage. When the data in table 2 are analyzed for the entire 49 days of the study, it is found that, regardless of the dose applied, there are no significant differences between the irradiated samples and the frozen controls except for the appearance of the sample irradiated at a level of 232,500 rads. This difference is at the 5-percent level of significance.

Table 3 - Taste-Panel Scores and Degrees of Difference Between Blanched Unirradiated and Blanched Irradiated Butterfish That Were Stored at 35° F. and Cooked in Steam

Storage Time	Control	Organoleptic Scores[1]									
		Samples Irradiated at 232,500 Rads					Samples Irradiated at 465,000 Rads				
	Mean Score	Mean Score	Appearance	Odor	Flavor	Texture	Mean Score	Appearance	Odor	Flavor	Texture
Days											
9	2/70.0	75.1	4/	4/	4/	4/	70.0	4/	4/	4/	4/
16	2/78.8	70.0	5/	5/	6/	5/	71.5	5/	5/	5/	6/
24	2/71.5	68.8	4/	4/	4/	4/	72.8	4/	4/	4/	4/
31	3/66.8	4/	4/	4/	4/	4/	62.3	6/	4/	4/	4/
38	3/70.9	61.1	5/	5/	5/	5/	62.3	4/	5/	4/	4/

1/Scores of 49 and less indicate poor quality, 50 to 59 borderline, 60 to 69 fair, 70 to 79 good, 80 to 89 very good, and 90 excellent.
2/Refrigerated controls stored at 35° F.
3/Frozen controls stored at 0° F.
4/Not significantly different from the controls.
5/Different from the control at the 5-percent level of significance.
6/Different from the control at the 1-percent level of significance.

Table 3 indicates that the blanched, irradiated butterfish were acceptable for at least 38 days of storage at 35° F. However, further examination of these data shows that with respect to no attribute did enzyme inactivation by blanching result in an improvement of keeping quality over the period studied. Applying the test for significant difference to the storage period as a whole indicates that, at an irradiation level of 232,500 rads, there were no significant differences between the blanched, unirradiated, frozen controls and the irradiated samples. At the 465,000-rad level, the odor and flavor of the frozen controls were preferred, at the 5-percent level of significance, to the odor and flavor of the irradiated samples.

Cod: Raw, irradiated cod were tested over a period of 94 days, as is shown in table 4. At the end of that time, the samples irradiated at a level of 232,500 rads were still considered acceptable, although barely so. The fillets irradiated at a higher dose became unacceptable after 31 days of storage.

Table 4 - Taste Panel Scores and Degrees of Difference Between Raw Unirradiated and Raw Irradiated Cod Stored at 35° F. and Cooked in Steam

Storage Time	Control	Organoleptic Scores[1]									
		Samples Irradiated at 232,500 Rads					Samples Irradiated at 465,000 Rads				
	Mean Score	Mean Score	Appearance	Odor	Flavor	Texture	Mean Score	Appearance	Odor	Flavor	Texture
Days											
3	2/80.0	4/	4/	4/	4/	4/	71.5	4/	5/	4/	5/
6	2/85.3	67.5	4/	6/	6/	6/	65.5	5/	6/	6/	6/
15	3/79.0	62.3	4/	6/	6/	4/	62.3	4/	6/	6/	4/
24	3/79.0	65.3	5/	6/	5/	4/	63.0	4/	5/	5/	6/
31	3/79.3	66.8	5/	5/	5/	5/	60.3	5/	5/	6/	5/
37	3/81.0	50.3	5/	5/	5/	6/	49.3	6/	5/	6/	5/
55	3/78.3	56.7	4/	5/	5/	5/	54.3	5/	5/	5/	5/
94	3/79.0	58.3	6/	6/	6/	6/	49.0	6/	6/	6/	6/

1/Scores of 49 or less indicate poor quality, 50 to 59 borderline, 60 to 69 fair, 70 to 79 good, 80 to 89 very good, and 90 excellent.
2/Refrigerated controls stored at 35° F.
3/Frozen controls stored at 0° F.
4/Not significantly different from the control.
5/Different from the control at the 5-percent level of significance.
6/Different from the control at the 1-percent level of significance.

A statistical consideration of each attribute over the entire storage period indicates that the frozen controls are uniformly preferred over the samples irradiated at 232,500 and 465,000 rads, at the 5-percent and 1-percent level of significance, respectively.

Blanching of cod fillets prior to irradiation did not significantly affect the acceptability of the product, as is shown in table 5, and an examination of these data does not reveal any marked effect on the scores assigned to the individual attributes as a result of blanching. When the entire storage period is treated as one test, it is found that, regardless of the irradiation dose used, or the attribute under consideration, the frozen control is preferred over the irradiated samples at the 1-percent level of significance.

Table 5 - Taste-Panel Scores and Degrees of Difference Between Blanched Unirradiated and Blanched Irradiated Cod Stored at 35° F. and Cooked in Steam

Storage Time	Control	Organoleptic Scores[1]									
		Samples Irradiated at 232,500 Rads					Samples Irradiated at 465,000 Rads				
	Mean Score	Mean Score	Appearance	Odor	Flavor	Texture	Mean Score	Appearance	Odor	Flavor	Texture
Days											
3	2/80.0	65.8	4/	5/	6/	6/	-	4/	4/	4/	4/
6	2/80.9	72.0	4/	5/	4/	5/	70.0	5/	4/	5/	5/
16	2/76.8	62.8	5/	6/	6/	6/	46.8	5/	6/	6/	6/
25	3/83.0	54.5	5/	6/	6/	6/	56.5	5/	6/	6/	6/
32	3/80.3	60.9	6/	6/	6/	6/	60.4	6/	5/	6/	5/
39	3/70.8	53.0	4/	5/	5/	4/	53.0	4/	6/	5/	5/

1/Scores of 49 or less indicate poor quality, 50 to 59 borderline, 60 to 69 fair, 70 to 79 good, 80 to 89 very good, and 90 excellent.
2/Refrigerated controls stored at 35° F.
3/Frozen controls stored at 0° F.
4/Not significantly different from the control.
5/Different from the control at the 5-percent level of significance.
6/Different from the control at the 1-percent level of significance.

Although experiments with fried cod were few in number, it is clear from an examination of table 6 that deep-fat frying serves to reduce the differences between controls and experimental samples, particularly at the lower level of irradiation.

Table 6 - Taste-Panel Scores and Degrees of Difference Between Raw Unirradiated and Raw Irradiated Cod Stored at 35° F. and Deep-Fat Fried

Storage Time	Control[2]	Organoleptic Scores[1]									
		Samples Irradiated at 232,500 Rads					Samples Irradiated at 465,000 Rads				
	Mean Score	Mean Score	Appearance	Odor	Flavor	Texture	Mean Score	Appearance	Odor	Flavor	Texture
Days											
33	80.0	77.1	3/	3/	3/	3/	74.6	3/	3/	5/	3/
58	72.3	66.8	3/	3/	3/	3/	66.8	3/	3/	4/	3/

1/Scores of 49 or less indicate poor quality, 50 to 59 borderline, 60 to 69 fair, 70 to 79 good, 80 to 89 very good, and 90 excellent.
2/Frozen controls stored at 0° F.
3/Not significantly different from the control.
4/Different from the control at the 5-percent level of significance.
5/Different from the control at the 1-percent level of significance.

Pollock: Pollock fillets did not respond well to irradiation. Results of the taste panel evaluation of steam-cooked fillets are shown in table 7. Fillets irradiated at the 232,500-rad level had a maximum period of acceptability of 2 to 3 weeks. Fillets irradiated at a level of 465,000 rads were no better than barely acceptable at any

Table 7 - Taste-Panel Scores and Degrees of Difference Between Raw Unirradiated and Raw Irradiated Pollock Fillets Stored at 35° F. and Cooked in Steam

Storage Time	Control[2]	Organoleptic Scores[1]									
		Samples Irradiated at 232,500 Rads					Samples Irradiated at 465,000 Rads				
	Mean Score	Mean Score	Appearance	Odor	Flavor	Texture	Mean Score	Appearance	Odor	Flavor	Texture
Days											
7	65.0	66.0	3/	3/	5/	3/	54.3	3/	4/	5/	4/
11	72.5	55.3	4/	5/	4/	5/	52.1	3/	5/	4/	5/
18	70.0	61.7	3/	5/	5/	5/	56.3	3/	5/	5/	3/
21	67.4	52.6	3/	3/	4/	4/	46.0	3/	5/	3/	3/
28	69.8	53.0	4/	5/	5/	4/	39.8	4/	5/	5/	5/
45	69.3	49.3	3/	5/	5/	5/	41.3	3/	5/	5/	5/

1/Scores of 49 or less indicate poor quality, 50 to 59 borderline, 60 to 69 fair, 70 to 79 good, 80 to 89 very good, and 90 excellent.
2/Frozen controls stored at 0° F.
3/Not significantly different from the control.
4/Different from the control at the 5-percent level of significance.
5/Different from the control at the 1-percent level of significance.

time during the maximum storage period of 2 weeks. Fillets irradiated at a level of 930,000 rads had a storage life of less than 11 days. This latter sample is not included in the tabulated data.

Statistical treatment of the results of this storage period, considered as one test, shows a preference for the controls over all the irradiated samples for each attribute, except "appearance" of the sample irradiated at 232,500 rads. There was no significant difference between the "appearance" of these samples and that of the frozen controls.

Table 8 - Taste-Panel Scores and Degrees of Differences Between Raw Unirradiated and Raw Irradiated Pollock Stored at 35° F. and Deep-Fat Fried

Storage Time	Control[2]	Organoleptic Scores[1]									
		Samples Irradiated at 232,500 Rads					Samples Irradiated at 465,000 Rads				
	Mean Score	Mean Score	Appearance	Odor	Flavor	Texture	Mean Score	Appearance	Odor	Flavor	Texture
Days											
12	72.7	78.5	3/	3/	3/	3/	69.0	3/	3/	3/	3/
31	76.8	71.0	3/	3/	3/	3/	64.3	3/	3/	3/	4/

1/Scores of 49 or less indicate poor quality, 50 to 59 borderline, 60 to 69 fair, 70 to 79 good, 80 to 89 very good, and 90 excellent.
2/Refrigerated control stored at 35° F.
3/Not significantly different from the control.
4/Different from the control at the 5-percent level of significance.

Table 8 indicates that deep-fat frying had a marked effect on the acceptability of irradiated pollock fillets. The difference in acceptability of steamed and of fried samples at the lower levels of irradiation is striking; however, when the irradiation level is as high as 930,000 rads, the product remains unacceptable regardless of the cooking method.

CONCLUSIONS

(1) At a storage temperature of 35° F. the shelf life of raw butterfish can be extended about three times by treating the butterfish at a level of 232,500 rads. Irradiating at a dosage level of 465,000 rads or blanching before irradiation resulted in slightly decreased acceptability with no increase in storage life.

(2) Raw cod fillets irradiated at levels of 232,500 or 465,000 rads and stored at 35° F. were less acceptable than were the unirradiated, frozen controls and had a shelf life of approximately 30 days.

(3) Blanched cod fillets irradiated at either 232,500 or 465,000 rads and stored at 35° F. were less acceptable than the unirradiated, frozen controls and had a maximum storage life of approximately 30 days.

(4) Deep-fat frying of irradiated cod fillets markedly increased their acceptability over that of fillets cooked in steam.

(5) Irradiated raw pollock fillets stored at 35° F. and cooked by being steamed exhibited no useful increase in shelf life over that of unirradiated, unfrozen fillets. Deep-fat frying of irradiated pollock fillets markedly increases their acceptability over that of similar fillets cooked in steam.

LITERATURE CITED

GARDNER, ELIZABETH and WATTS, BETTY M.
1957. Effect of Ionizing Radiation on Southern Oysters. Food Technology, vol. 11, no. 6 (June), pp. 329-331.

KRAMER, A.
1956. A Quick Rank Test for Significance of Differences in Multiple Comparisons. Food Technology, vol. 10, no. 8 (August), pp. 391-392.

McGARY, VIRGINIA E.; SHIPMAN, MARGARET E.; and BERNSTEIN, L. M.
1956. Acceptability of Irradiated Foods. Journal of the American Dietetic Association, vol. 32, no. 2 (February), pp. 123-127.

NICKERSON, J. T. R.; LOCKHART, E. E.; PROCTOR, B. E.; and LICIARDELLO, J. J.
1954. Ionizing Radiations for the Control of Fish Spoilage. Food Technology, vol. 8, no. 1 (January), pp. 32-34.

_____; PROCTOR, B. E.; and GOLDBLITH, S. A.
1956. Ionizing Radiation in the Processing of Plant and Animal Products. Food Technology, vol. 10, no. 7 (July), pp. 305-311.

OBSERVATIONS ON TRAWL-DOOR SPREAD AND A DISCUSSION OF INFLUENCING FACTORS

By Fredrick Wathne*

SUMMARY

During the spring and summer of 1958, biologists of the Bureau of Commercial Fisheries conducted a population survey of the king crab, Paralithodes camtschatica (Tilesius), in the Southeastern Bering Sea, using an otter trawl. In the course of the investigation, measurements of the trawl-door spread were obtained. These measurements were examined to determine the effect of water depth, vessel speed, and total catch on door spread.

It was found, when using a warp-scope ratio of 3:1, that the spread of the doors was greater in deep water than in shallow water. Door spread in shallow water appeared to decrease with increased vessel speed. There was also some indication that larger catches reduced door spread; however, the relationship was not strong.

Fig. 1 - 75-foot schooner-type vessel Tordenskjold chartered for the king crab survey.

The work of DeBoer (1957) who used especially designed instruments, demonstrated that door spread is largely determined by the degree of contact between the doors and the bottom. The present paper proposes that, when using a small scope

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ratio in shallow water, the pull by the warp at the door is upward. This results in the tilting of the door outward and forward as observed by DeBoer. Because contact between the door and the bottom in this case is poor, the spread is small. In deeper water the door theoretically loses its tilt and operates squarely, resulting in good bottom contact and increased spread. In still greater depths the door may tilt back and in. Although the contact would seem to be reduced, the spread increases further. This effect is here interpreted as the probable result of the downward pull by the warp at the door, which forces it into the bottom resulting in better contact and increased spread.

BACKGROUND

During the spring and summer of 1958, biologists of the U. S. Bureau of Commercial Fisheries conducted a population survey of the king crab, Paralithodes camtschatica (Tilesius), in the Southeastern Bering Sea. In the course of the trawling operations, records of distance traveled, cable scope, and catch were kept, and measurements of trawl-door spread were obtained. Data collected were made available to the Bureau's Branch of Exploratory Fishing and Gear Research for evaluation of the effects of these variables on the spread of the trawl during fishing. The measurements of door spread were taken to assist in a population study and were not specifically designed to accrue information for gear evaluation. Controlled experiments covering various depth ranges and speeds were not conducted. The observed relationships, therefore, should be considered as qualitative rather than quantitative.

GEAR AND METHODS

A 75-foot schooner-type vessel, the M/V Tordenskjold, was chartered for the survey (fig. 1). The vessel, powered by a 180 hp. engine, has a mean draft of 9 feet and a beam of 18 feet. The trawling gear, typical of Pacific coast trawlers, was towed from davits on each side of the stern and hauled over the starboard side. A 400-mesh eastern otter trawl, with a 71-foot headrope and a 94-foot groundrope, was

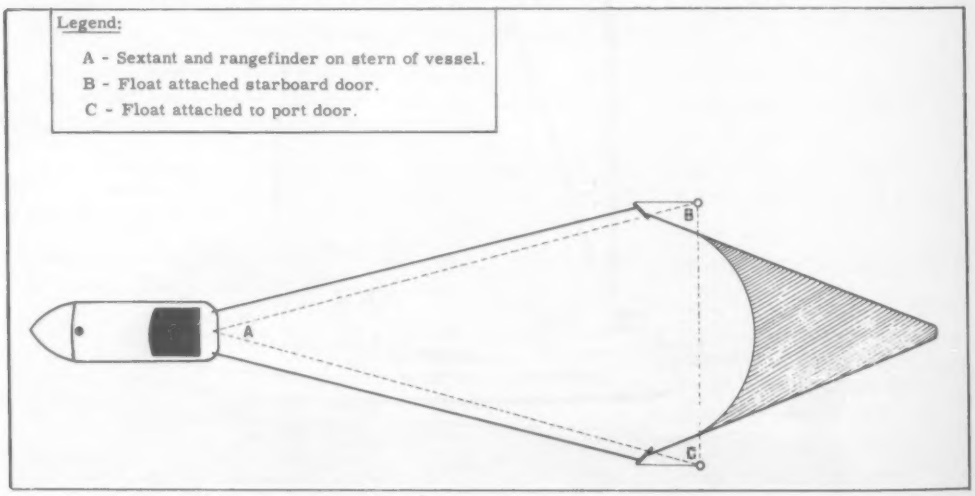

Fig. 2 - Angles and distances measured to determine door spread.

fished using 3 by 6-foot doors weighing approximately 550 pounds each. Seven-fathom extensions were added forward of each wing and the extended wings were secured directly to the doors.

The spread of the doors, while trawling, was determined as follows: Spherical floats, 18 inches to 20 inches in diameter, were secured to the doors with 100 fathoms of $\frac{1}{16}$-inch stainless-steel cable. Since all fishing was conducted in waters shallower than 80 fathoms, this amount of cable insured that the floats would reach the surface while the gear was being towed. The angle between the floats, from a point on the stern of the vessel, was measured with a sextant, and the distance from this point to the floats was measured with a U. S. Navy range finder. The distance between the doors was obtained by solving the triangle formed by the vessel and the floats (fig. 2). This method is similar to that used by Carlson (1952).

Fig. 3 - The "lawn roller" meter used to measure the distance traveled by the trawl on the bottom--developed by the Fisheries Instrumentation Laboratory, U. S. Fish and Wildlife Service, Seattle, Wash.

The distance traveled by the trawl on the bottom was measured by a meter attached to the cod end (fig. 3). The meter was equipped with two counters that made independent readings. This served as a check and insured a measurement in the event that one counter malfunctioned. The speed of the vessel was calculated by relating the measured distance to the dragging time.

RESULTS

During the survey a total of 120 drags was made, of which 91 were used in this analysis. These drags were made at depths ranging from 20 to 62 fathoms and at vessel speeds from 2.0 to 3.0 knots. The total catch per drag ranged between 350 and 5,000 pounds.

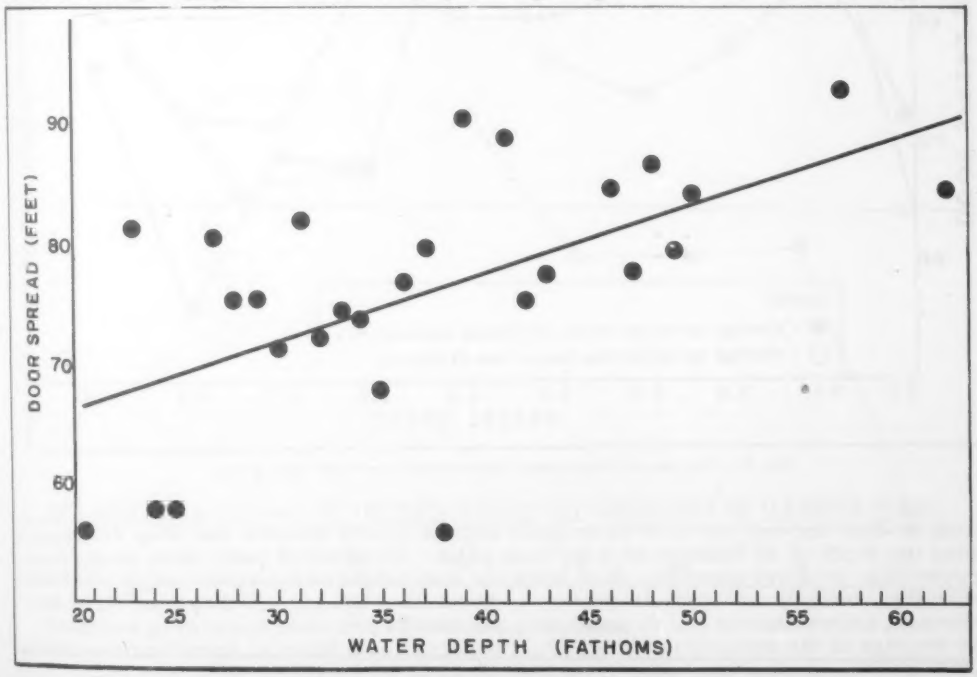

Fig. 4 - The relationship between water depth and door spread.

DEPTH AS RELATED TO DOOR SPREAD: The average door spread per drag, using a constant scope ratio[1/] (2.9-3.1 to 1), as related to water depth is shown in figure 4. The results demonstrate a greater spread as the water depth increases. This suggests that a scope ratio of 3:1 was not adequate for obtaining the maximum spread of this trawling gear in shallow water. The need for greater scope ratios in shallow water is in agreement with the observations of numerous investigators, including Miyamoto (1957). Saito (1957) and Bullis (1951) report that fishermen use scope ratios greater than 3:1 in shallow waters. DeBoer (1957), using various scope ratios in a constant water depth (8½ fathoms), demonstrated a progressive increase of door spread with scope ratios varying from 3.4:1 to 8.1:1.

DOOR SPREAD AS RELATED TO VESSEL SPEED: To minimize bias due to the effect of increasing door spread with increasing depth, the data have been separated into two groups: drags at 38 fathoms and shallower, and drags deeper than 38 fathoms. The relation of vessel speed to door spread is shown in figure 5. In shallow water there is a tendency for the door spread to decrease with greater speeds, but in deeper water this trend is not apparent. A decrease in door spread in shallow water, following increased vessel speed, is consistent with the results obtained by Ketchen (1951).

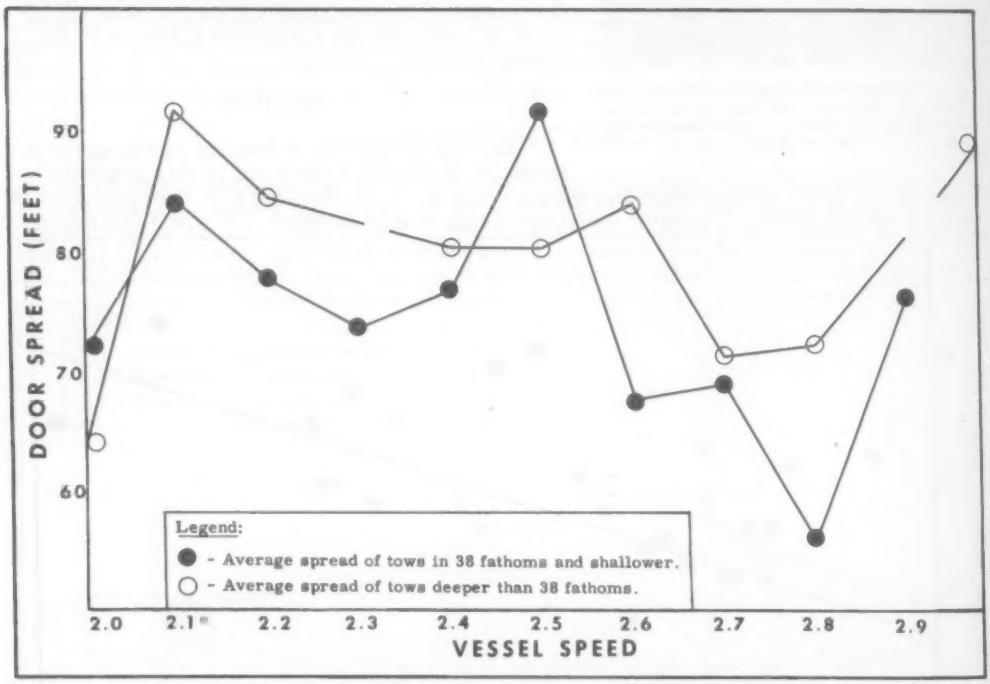

Fig. 5 - The observed relationship between vessel speed and door spread.

DOOR SPREAD AS RELATED TO TOTAL CATCH: In evaluating the effect of catch on door spread, the data were again separated into shallow and deep drags, using the depth of 38 fathoms as a division point. An effect of total catch on door spread (fig. 6) is not apparent. It is possible that catches of greater magnitude than those that were obtained are necessary to affect door spread, or that inter-drag differences, independent of catch, mask this effect. To preclude inter-drag variance, the average of the deviations of individual observations, taken at specific time inter-

1/Ratio of towing cable out to water depth.

vals, from the average within drag spread were calculated and the resulting points were plotted (fig. 7). Using this technique, a trend of decreasing spread with increased dragging time is indicated. The spread of the doors apparently decreases as the dragging time progresses, presumably because of increased catch. The relationship, however, is not strong; and as previously noted, the size of the catches may have been insufficient to markedly affect door spread.

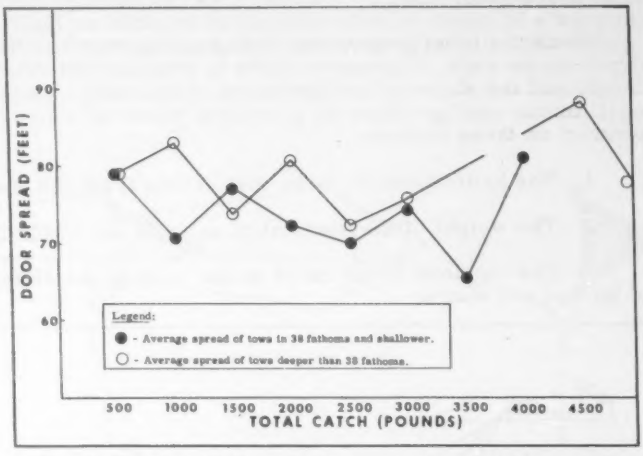
DOOR SPREAD (FEET)
90
80
70
60
Legend:
● - Average spread of tows in 38 fathoms and shallower.
○ - Average spread of tows deeper than 38 fathoms.
500 1000 1500 2000 2500 3000 3500 4000 4500
TOTAL CATCH (POUNDS)

Fig. 6 - The observed relationship between total catch and door spread.

FACTORS AFFECTING DOOR SPREAD

The foregoing observations between scope ratio, speed, and door spread are in agreement with experiments and observations of other research workers directed at the evaluation of these factors. The confirmation of those previous studies, however, is primarily of academic interest in that it offers little more quantitative knowledge than is already available. The variation in spread between drags, observed in this study, demonstrates the wide variability in behavior of the trawl in

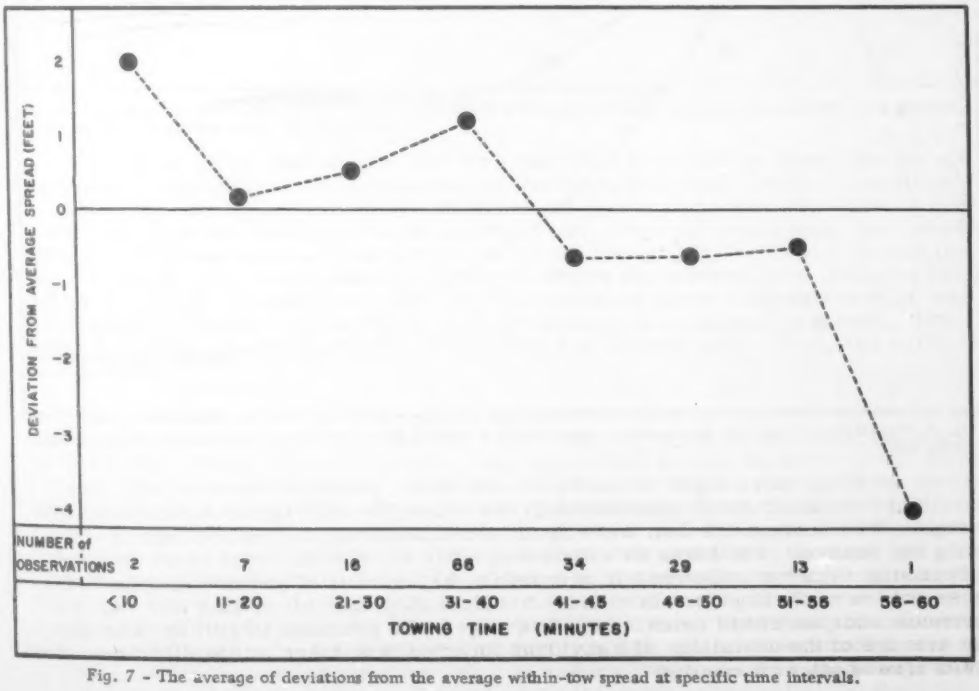

Fig. 7 - The average of deviations from the average within-tow spread at specific time intervals.

operation and illustrates the value of a more complete understanding of the factors which determine the spread of the trawl doors. The following discussion is based largely on observations and a synthesis of ideas resulting from a survey of pertinent literature.

Since the most pronounced change in spread was found to be associated with the depth-scope ratio, it is appropriate to examine the relationship between the warp length and the shape or configuration of the warp. Pode (1951) points out that the equilibrium configuration (in a vertical plane) of a flexible cable in a stream is dependent on three factors:

1. The hydrodynamic force that arises from the water flow (vessel speed).

2. The weight of the element of cable in the water (length of cable out).

3. The tensions in the cable at the ends of the element (pull of vessel and drag of the net and doors).

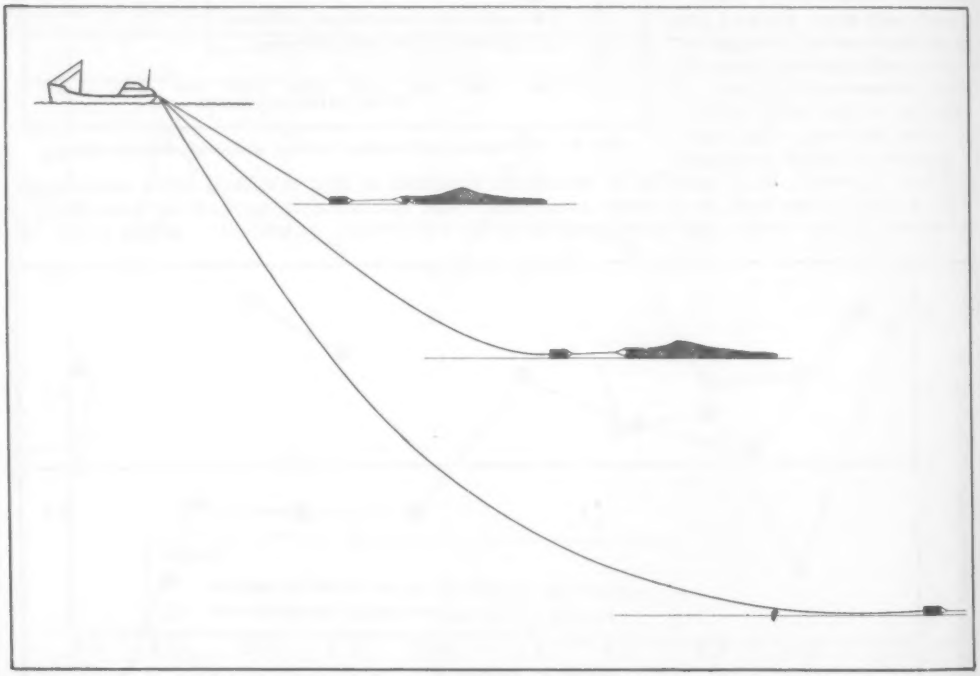

Fig. 8 - Hypothetical trawl warp configuration--projected to a vertical plane--in various water depths using a constant scope ratio.

In trawling, when depth is increased and the scope ratio, vessel speed, and terminal tensions remain approximately the same, the only factor affected is cable weight. With more cable out, and without a compensating increase of speed and terminal tensions, the downward force of gravity in relation to the hydrodynamic lift becomes greater. The result is a change in the equilibrium configuration or shape of the cable (fig. 8). As viewed in a vertical plane, when the water depth is increased but the scope ratio is held unchanged, the direction of pull by the cable at the trawl door theoretically changes from an upward to a horizontal direction. This is in agreement with results of studies of trawl warp configuration by Kullinberg

(1951) and Kobayashi and Takashashi (1951 a and b). The theoretical change in the lateral configuration of the warp with increased depth (scope ratio unchanged) is shown in figure 9. The direction of pull on the door by the warp in shallow water is apparently forward, and with increasing depth, tends to become progressively inward, toward the mid-line. Similar changes of configuration or shape of a warp may be obtained by either increasing depth, using a constant scope ratio, or increasing scope ratio in a constant water depth.

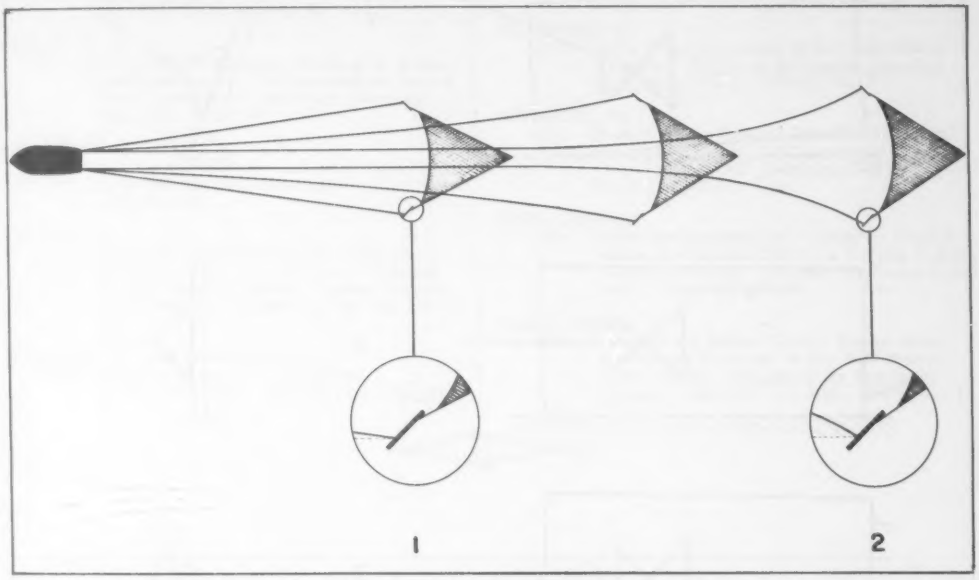

Fig. 9 - Hypothetical trawl warp configuration--projected to a horizontal plane--in various water depths using a constant scope ratio in (1) shallow water, (2) deep water.

The effect on the performance of the trawl door produced by these various directions of pull of the warp is indicated by the work of DeBoer (ibid). In addition to observing instrumental evidence of increased door spread with increased scope ratio (in a constant depth), he found that the longitudinal tilt of the door, as recorded by his instruments, was from forward to aft; the lateral tilt, from out to in; and the angle of attack, from large to small. Figure 10 shows the above effects. In figure 10(1) the door is tilted out and foreward. The door shown in figure 10(2) is laterally and longitudinally square, and in figure 10(3) the door is tilted in and backward. The warp is pulling upward, forward, and downward in figures 10(1), 10(2), and 10(3), respectively.

The resultant effect of the mentioned factors on door spread will vary with water depth and towing speed. In shallow water, using a small scope ratio, the warp is apparently pulling up and forward. This would tend to pull the door off the bottom resulting (because of its construction and the direction and magnitude of the forces affecting it) in a tilting of the door outward and forward. Since the lateral pull is probably minimal in this situation, the angle of attack will be large. The forward tilt, however, reduces the contact with the bottom and, therefore, the shearing effect, resulting in reduced spread. Using the same scope ratio in deeper water, the warp apparently pulls forward and in, resulting in a minimum tilt in both directions and a smaller angle of attack. Since contact with the bottom is better, the shearing effect is increased. Although in this instance the angle of attack is smaller, the spread is greater. DeBoer (ibid) found that with a greater increase in scope ratio (analagous to a further increase in depth using the same scope ratio) the door tilt

became slightly aft (tilt 0.5°) and in; and although the angle of attack decreased further, the spread of the doors continued to increase. This is probably because the warp was pulling down (in a vertical plane) since it was on or near the bottom ahead of the door, and tended to force the door into the bottom. Although slightly tilted, the contact of the door with the bottom would be better than in the previous instances, and therefore, the shearing effect and the spread would be greater.

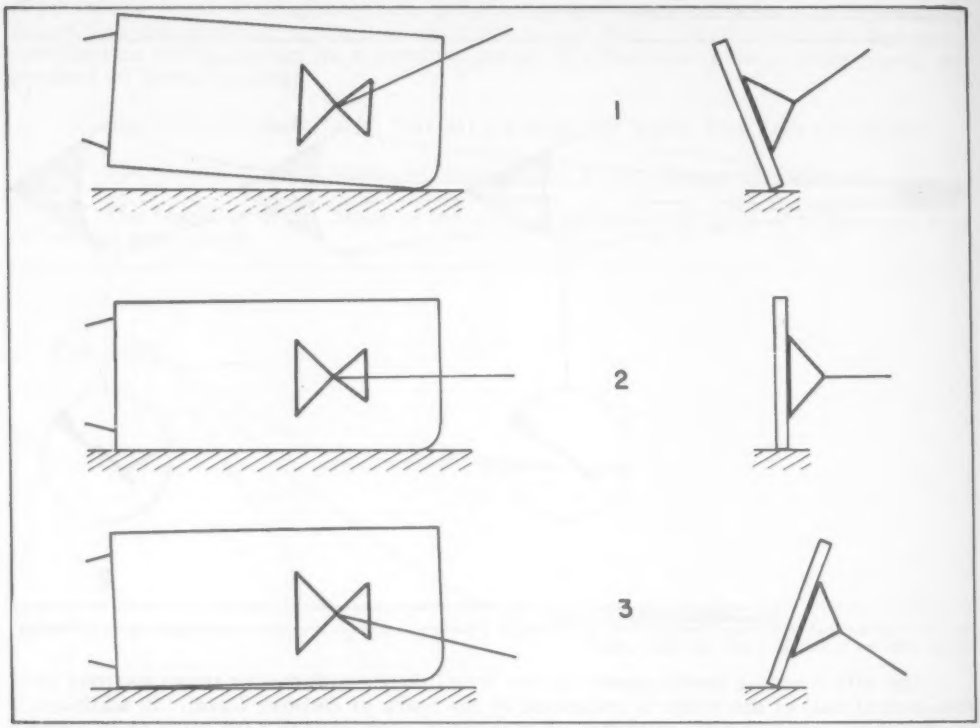

Fig. 10 - Hypothetical longitudinal (left) and lateral tilt of the trawl door using a small scope ratio, progressing from shallow water (1) to deep water (3).

The effect of vessel speed on door spread is similarly related to the change of equilibrium configuration of the cable. In this instance the hydrodynamic force, which is increased when speed is increased, results in a greater lift on the warp. The warp is, therefore, pulled away from the horizontal, resulting in a more upward pull on the doors and consequently a decreased spread. This effect is more pronounced in shallow water (when using a small scope ratio) because the warp is initially pulling upward, and the greater speed increases the upward pull, reducing the bottom contact and, consequently, the spread. In deeper water, with the same scope ratio, an equivalent speed increase will also alter the shape of the cable. The effect on the warp at the trawl door, however, is much less and it lies within a range that will not produce significant changes in the position of the door.

The foregoing observations and considerations indicate that the spread of a trawl is determined principally by the degree of contact between the doors and the bottom. Considering the number and variability of the factors which influence door spread, it is apparent that obtaining consistent optimum spread is extremely complex. Development of doors that will produce optimum contact with the bottom within a wide range of scope ratios and speeds, or that will produce maximum spread independent of bottom contact, could be rewarding.

LITERATURE CITED

BULLIS, H. R.
1951. Gulf of Mexico Shrimp Trawl Designs. U. S. Fish and Wildlife Service, Fishery Leaflet 394 (September), 16 pp.

CARLSON, CARL B.
1952. Increasing the Spread of Shrimp Trawls. Commercial Fisheries Review, vol. 14, no. 7, July 1952. (Also Separate No. 316.)

DE BOER, P. A.
1957. Trawl Gear Measurements Obtained by Underwater Instruments. FAO International Fishing Gear Congress 1957, Hamburg, Germany, Paper, No. 25 (b), 21 pp.

FISH AND WILDLIFE SERVICE, U. S.
1957. Fisheries Instrumentation Laboratory Newsletter, U. S. Fish and Wildlife Service, vol. 1, no. 1 (November).

KETCHEN, K. S.
1951. Preliminary Experiments to Determine the Working Gape of Trawling Gear. Fisheries Research Board of Canada, Progress Reports of the Pacific Coast Stations, No. 88 (October).

KOBAYASHI, K., and TAKAHASHI, H.
1951a. A Study on Fishing Trawl Operated in Any Depth of Sea Water. Bulletin of the Faculty of Fisheries, Hokkaido University, vol. 1, nos. 3 and 4.

1951b. A Study on Fishing Trawl Operated in Any Depth of Sea Water (cont.). On the Relations Between the Length of Warp and the Frontage of Otter Board. Bulletin of the Faculty of Fisheries, Hokkaido University, vol. 2, no. 1.

KULLINBERG, B.
1951. On the Shape and Length of the Cable During Trawling. Report of the Swedish Deep Sea Expedition, vol. 2, Zoology, no. 2.

MIYAMOTO, H.
1957. On the Relation Between Otter Trawling Gear and Towing Power. FAO International Fishing Gear Congress 1957, Hamburg, Germany, Paper No. 105 (b), 7 pp.

PODE, LEONARD
1951. Tables for Computing the Equilibrium Configuration of a Flexible Cable in a Uniform Stream, Navy Department, The David W. Taylor Model Basin, Report 687 (March).

SAITO, ICHIRO
1957. Studies on the Fishing Ground, Fishing Gears, and Fishing Technique in One-Boat Medium Trawl Fishery. Memoirs of the Faculty of Fisheries, Hokkaido University, vol. 5, no. 1.

WHAT ATTRACTS FISH?

The sense of smell plays a fairly important part in the lives of all fish, but it is not the only sense upon which they rely to obtain food. They rely also upon the organs of sight and hearing; however, if these should fail, they could probably locate food by smell alone.

In some fish the sense of smell is extremely acute. The smell of blood or of decaying fish, for instance, attracts sharks from great distances. The extent to which the sense of smell is employed for locating food varies not only with the species of fish but also with circumstances.

The U. S. Bureau of Commercial Fisheries has conducted some research on the effects of sound on fish and from that work it is felt that except for the initial "start" when sound is first perceived, there is little effect either as an attracting force or as a repelling one.

In summary, it appears from research done on stimuli which attract fish that the sense of sight is probably the most important sense to the fish in terms of recognizing danger, food, etc. Consequently, it would seem that attractants designed to stimulate the sense of sight would be the most effective. This applies to fish in both fresh-water and the marine environments.

POSSIBLE ATOMIC ENERGY COMMISSION ASSISTANCE OF RESEARCH ON RADIATION PRESERVATION OF FISH

The Ad Hoc Committee to the Interdepartmental Committee on the Radiation Preservation of Foods has recommended that Federal agencies, in line with the President's Atoms for Peace Program, sponsor further research into the preservation of foods through radiation. As a result of this recommendation, representatives of the U. S. Bureau of Commercial Fisheries were invited to discuss with Atomic Energy Commission (AEC) representatives the potential of fishery products as a food on which intensive research might profitably be conducted. The unique needs of the fresh fish trade for an improved method of preservation, such as radiation preservation, as well as the very encouraging findings of the Bureau in this field, were outlined.

On the basis of the discussion, the AEC is prepared to concentrate its efforts in radiation preservation research on the products of the fishing industry. There is in preparation a research program and justification for presentation to Congress. The Chief of AEC's Office of Isotopes Development has indicated that it may be possible to supply one of the Bureau's technological laboratories with a mobile reactor suitable for fisheries research. He also expressed some interest in the possible use of isotopes as a tracer to evaluate the extent of water pollution in the effluent of various industrial plants.

OPTIMUM LEVEL OF MENHADEN FISH MEAL AND SOLUBLES AS SOURCES OF GROWTH FACTORS IN BROILER DIETS

In broiler feeding experiment No. 13 conducted at the University of Delaware, rather conclusive evidence was obtained as to responses obtained from fish meal and condensed fish solubles in a corn-soy diet not supplemented with methionine. This experiment was part of a study conducted under a contract between the University of Delaware and the Bureau of Commercial Fisheries financed with funds derived from the Saltonstall-Kennedy Act (Public Law 466, 83rd Congress, 1954).

In this test, selected day-old White Rock cockerels were allotted randomly to 20 groups of 50 chicks each and were housed in floor pens at the poultry farm at the University of Delaware. The weight of each chick and the feed consumed by each group of chicks were determined at the end of eight weeks.

All diets fed to the various groups of chicks were prepared from a constant amount of basal mash consisting of ground yellow corn, soybean meal, corn gluten meal, alfalfa meal, vitamin premix, salt, and a trace mineral mix. This mash was the base of the experimental diets to which were added varying levels by weight, of menhaden fish meal or menhaden fish meal and condensed fish solubles. Each varying level of fishery product added, however, was done so in duplicate to permit

formulation of paired diets containing the same levels of fish meal or fish meal and solubles, but containing different levels of total protein. The diets then were individually balanced with corn meal, soybean meal, fat and bone meal to formulate comparable diets, containing either 22 percent total protein or 26 percent total protein and 1,050 calories of productive energy per pound. No supplementary methionine was added to these diets. Actual chemical analyses were conducted on a random selection of three of the diets containing 22 percent protein and three of the diets containing 26 percent protein. Results indicated that the calculated analyses of the diets were accurate.

The moisture, protein, fat and ash contents were 7.0, 62.6, 12.6, and 16.0 percent, respectively, for the commercial sample of menhaden meal used in this test. The fish meal had been treated with the antioxidant butylated-hydroxy-toluene (BHT). The moisture, protein, fat and ash contents were 49.8, 33.8, 8.7, and 8.0 percent, respectively, for the commercial samples of condensed menhaden solubles used in this test. Values of 1,030 and 612 calories of productive energy per pound for the menhaden meal and solubles, respectively, were utilized in formulating the various diets containing the fishery products.

In each experimental series there was a control diet that contained no added fish meal or solubles and three diets that contained only fish meal--one each at a level of 2.5, 5.0, and 7.5 percent by weight. The six remaining diets in each series contained the fish meal and solubles in combination. Three of these diets contained a level of 2.5 percent fish solubles by weight--one each with 2.5, 5.0, and 7.5 percent fish meal. And three of these diets contained a level of 5.0 percent fish solubles by weight--one each with 2.5, 5.0, and 7.5 percent fish meal.

1. In the 22-percent protein diet, all levels of fish meal gave a significant improvement.

2. The condensed fish solubles gave a response which was additive over the fish meal.

3. The 26-percent protein basal ration gave much better growth than the 22-percent basal ration. However, the 22-percent ration with 5-percent fish meal and 4.8-percent fat gave equal growth and better feed conversion than the 26-percent basal with 8-percent fat. The responses from fish meal and condensed fish solubles were not as great on the 26-percent diet as the 22-percent diet insofar as growth was concerned, but they did show improvements in feed conversion.

We believe that these data present definite results of importance in the practical use of fish meal and condensed fish solubles. Fish meal has its greatest value in the lower protein ration. This is entirely logical because quality of protein or the best supply of essential amino acids becomes most important in the lower protein ration. As the level of protein is increased, the need for more fat to keep the diets iso-caloric is demonstrated; and, fat costs as much or more than fish meal depending upon geographic location.

To say the above in another manner, it is obvious that when all the essential amino acids are supplied at the lowest possible level of protein, it is possible to use more corn as an economical source of energy. In formulating feeds on this basis, synthetic methionine must be given consideration too. In fact, we believe that it makes an economic contribution where fish meal is used in the corn-soy basal diet.

It must be constantly kept in mind that the economic contribution fish meal makes must be judged on the basis of its over-all values as shown by comparison with the New England College Conference ration, where methionine is added, and a substitute formula without fish meal.

On the basis of costs at Lancaster, Penn., the 22-percent ration with 5-percent fish meal, and the 22-percent ration with 5-percent fish meal and 2½-percent condensed fish solubles, cost less than the 26-percent ration without fish products which gave significantly poorer growth and feed conversion. This difference will, of course, vary in different sections of the country.

Our present research problem is to develop calorie to amino acid requirements and not be satisfied with calorie to protein requirements. Our leading investigators in poultry nutrition have emphasized this fact.

SUPPLEMENTARY EFFECT OF FISH MEAL AND FISH SOLUBLES IN CHICK DIETS

Rather extensive research with chicks fed commercially-practical broiler diets in batteries has failed to indicate at this time that commercial variables in processing will affect the uniform value of fish products.

When condensed menhaden fish solubles were superimposed upon menhaden fish meal in experimental treatments, their chick-growth promoting effect was additive.

Five percent fish meal and 2.5 percent condensed fish solubles in combination were found to be a practical level of fish products for the study of their chick-growth promoting properties.

A 26-percent protein unsupplemented corn-soy-fat chick diet produced superior growth to a 22-percent unsupplemented protein diet equated for energy. When these diets were supplemented with a combination of 5-percent fish meal and 2.5-percent fish solubles, the results from both diets were improved, but the lower protein diet was improved to a greater extent making the two different protein levels comparable. This is interpreted to be due to improved amino acid balance.

Preliminary findings indicate that results from battery experiments with fish products may not be applicable to floor pen studies under commercial conditions.

This information on the biological value of fish meal using practical chick-type rations was revealed by a study conducted under a contract awarded the University of Delaware by the U. S. Bureau of Fisheries and financed by funds derived from the Saltonstall-Kennedy Act (Public Law 466, 83rd Congress, 1954).

The findings included information on the following:

1. The effect of processing variables on the feeding value of fish meals.
2. The additive effect of fish meal and fish solubles on chick growth.
3. Practical feeding levels of fish meal and fish solubles.
4. The effect of amino acid balance upon dietary protein level.
5. The value of fish meal fed to chicks in floor pens versus battery brooders.

FISH MEAL AS A SOURCE OF UNKNOWN GROWTH FACTOR AND HIGH-QUALITY PROTEIN

During 1955 and 1956 more than 20 samples of commercial and experimental fish meals were assayed for unknown growth factors. A standard sample of fish solubles was fed at several levels in each assay. It was assigned a potency of 10. The comparative potencies of the fish meal samples ranged from 2.5 to 13.8. The values for 8 commercial menhaden meals were 13.8, 11.8, 9.5, 5.4, 5.3, 3.0, 2.7, and 2.7. Attempts to relate this variation to known differences in origin, processing, or storage of the meals were unsuccessful.

Experiments involving controlled processing and storage indicated that the unknown growth factor is quite stable. Two samples of menhaden meal were assayed immediately after processing and after storage periods of different lengths under different conditions. Storage in air at room temperature for 18 months did not reduce the growth-factor potency. The potency was not reduced by excessive heat during processing, such as a 3-hour cooking period or a 3-hour drying period at 390° F.

Lest the variation in growth factor potency of fish meals be overemphasized, it should be clearly stated that all of the samples, both commercial and experimental, contained measurable quantities of growth factor.

Experiments on protein quality of fish meals showed that this characteristic was much more easily affected by improper processing than was growth-factor potency. (In these studies, extreme processing conditions were deliberately used in the preparation of the samples.)

This research was financed by funds made available by the Saltonstall-Kennedy Act of 1954 and a contract between the Bureau of Commercial Fisheries and the University of Wisconsin.

FEED FORMULATION UTILIZING A HIGH-SPEED DIGITAL COMPUTER

A high-speed digital computer was used to arrive at detailed and general considerations of least-cost feed formulation.

Since feed manufacturing has become a highly scientific and automated industry, and because many of these new feeds contain a great number of ingredients which provide essential nutrients and must be given proper weighting, new opportunities have developed for high-speed calculations.

Most major ingredients have definite nutritional components and supply varying amounts of essential nutrients. Each ingredient also has a definite cost at any specific time and these costs vary substantially from month to month and from one area to another. Digital computers have made possible the rapid calculation of least-cost formulas through the application of linear programming techniques which, when properly applied, can be of great assistance to the nutritionist both in the determination of least-cost feeds and as a check on the analyses of complex combinations of ingredients.

What is the most practical type of a ration today? In the main we shall refer to broiler, chick or turkey starter rations because we have the most data on these feeds. In most areas corn and soybean oil meal form the basis of practical broiler, chick and turkey starters; hence, we will proceed on this basis.

These two basic ingredients, corn and soybean oil meal, are supplemented by proper additions of known vitamins, minerals, fat for energy, and drugs that have been proven to assist in the control of disease or to stimulate growth.

The New England College Conference Broiler Starter is typical of a highly efficient broiler ration which meets the generally accepted standards for a top quality ration.

On the basis of what we know about nutritional requirements of chicks, if one leaves out the fish meal used in the New England College Conference Broiler Starter, substitutions would be required, but the two rations would have the same approximate nutritional content.

Analyses of the rations show the following differences in ingredients:

REMOVAL OF

Pounds	
100	Fish meal per ton of feed.
129	Ground yellow corn per ton of feed to make room for other necessary additions.
229	

(From the New England College Conference Broiler Starter)

ADDITION TO THE SUBSTITUTE RATION OF:

Pounds	
120	Soybean oil meal per ton of feed to equalize protein.
40	Condensed fish solubles per ton of feed to furnish the fish factor.
13.6	Dicalcium phosphate per ton of feed to furnish the same level of available phosphorus.
50	Fat per ton of feed to equalize the rations in productive energy.
4.4	Calcium carbonate per ton of feed to maintain the same calcium to phosphorus ratio.
1	Methionine per ton of feed to equalize the rations in methionine.
229	

Based on the market of June 8, 1959, costs, f.o.b. Philadelphia or Baltimore, were as follows:

Pounds		Per Ton	
100	Fish meal	@ $133.00 =	$ 6.65
129	Ground yellow corn	54.00 =	3.48
229			$10.13

Pounds		Per Ton	
120	50-percent soybean oil meal	@ $ 73.50 =	$ 4.41
40	Condensed fish solubles	80.00 =	1.60
13.6	Dicalcium phosphate	95.00 =	0.65
50	Fat	140.00 =	3.50
4.4	Calcium carbonate	7.60 =	0.02
1	Methionine	3,100.00 =	1.55
229			$11.73

The replacement costs of fish meal can be calculated readily in any area. The comparative values cited apply only on this basis of market values at Lancaster, Penn. Calculations in other areas should be made on actual ingredient costs.

Many products have been offered for sale as substitutes for fish meal that actually were only supposed to contain the unknown growth factor (or factors) in fish meal. One can replace fish meal only by restoring all of the nutritive values that the meal normally supplies.

GAS CHROMATOGRAPHIC STUDIES OF FISH SPOILAGE

Work is in progress to study the chemical nature of fish spoilage with the possible development of an objective index of fish quality or of a means of retarding fish spoilage.

The Bureau's Seattle Fishery Technological Laboratory recently completed the first extensive use of the new technique of gas chromatography to determine volatile acids in fish extracts. They are studying the formation of volatile organic acids during deterioration of fish meat. Acetic and formic acids were the only acids found while the fish were organoleptically acceptable. The sequence of formation of individual acids in fish incubated at 34° F., 40° F., and 70° F. was essentially the same except that propionic acid increased at a greater rate than other acids in the fish incubated at 70° F.

Composition of Some Fishery Products[1/]

Fish	Form	Portion	Calories	Percentage of Protein	Percentage of Fat
Bluefish	baked	4 oz.	193	34	.5
	fried	5.3 oz.	307	34	15
Clams	raw	4 oz.	92	14.5	1.6
	canned	3 oz	44	6.7	0.9
Haddock	fried	4 oz.	166	22.5	6.3
Halibut	broiled	4 oz.	207	29.8	9
Mackerel, Pacific	canned	3 oz.	153	17.9	8.5
Oysters	raw	1 cup	200	23.5	5.0
Salmon	broiled	1 steak	204	33.6	6.7
king	canned	3 oz.	173	16.8	11.2
chum	canned	3 oz.	118	18.3	4.4
silver	canned	3 oz.	140	17.9	7.1
pink	canned	3 oz.	122	17.4	5.3
red	canned	3 oz.	147	17.2	8.2
Sardines, Atlantic	canned in oil	3 oz.	288	17.9	23
Sardines, Pacific	canned, natural	3 oz.	171	15.1	11.5
	canned, tom. sauce	3 oz.	184	15.1	12.6
Shrimp	canned, drained	3 oz.	108	22.8	1.2
Swordfish	broiled	1 steak	223	34.2	8.5
Tuna	canned, oil drained	3 oz.	169	24.7	7.0
	canned, not drained	3 oz.	247	20.2	17.8

1/ Data obtained from USDA Handbook No. 8 Composition of Foods.

Atomic Waste

ISSUANCE OF DISPOSAL LICENSE TO MILITARY SEA TRANSPORTATION SERVICE PROPOSED:

The Atomic Energy Commission has given notice of proposed issuance of a license to the Department of the Navy, Military Sea Transportation Service (MSTS), Washington, D. C., for disposal of low-level radioactive wastes in the Atlantic and Pacific Oceans at a minimum depth of 6,000 feet (1,000 fathoms).

Notice of the proposed license issuance was filed with the Federal Register on August 10, 1959. The license was due to be issued by August 25, 1959, unless a request for a formal hearing was filed with the Commission.

Disposal operations by MSTS would be limited to the handling of waste materials generated in Federal Government laboratories and installations, including those operated by Commission contractors, authorized by the Commission to package waste for sea disposal. MSTS would act as a carrier for the waste material only from the dock to the sea-disposal location.

The types of waste to be handled are low in radioactivity, and generally consist of residual solutions from experiments, contaminated paper, cloth, glassware and equipment, animal carcasses, and sealed sources of radioactivity which have been reduced to unusable levels by the natural process of radioactive decay.

The sea-disposal containers used and the disposal sites would meet the recommendations of the National Committee on Radiation Protection for disposal of radioactive wastes in the oceans.

The proposed license specifies three Atlantic and two Pacific disposal sites, all designated heretofore as waste disposal areas. All proposed disposal sites have minimum depths of 6,000 feet (1,000 fathoms).

The approximate locations of the Atlantic sites are: (1) 200 miles due east of Cape Cod, Mass., (2) 105 miles east southeast of Cape Henry, Va., and (3) 120 miles southeast of Sandy Hook, N. J.

The approximate locations of the Pacific sites are: (1) 185 miles west southwest of Los Angeles, and (2) 115 miles due west of San Francisco.

* * * * *

OCEANIC DISPOSAL OF ATOMIC WASTE STUDIED BY COAST AND GEODETIC SURVEY:

Skin-diving oceanographers of the Coast and Geodetic Survey, U. S. Department of Commerce, have completed monitoring of simulated packages of "radioactive waste," dumped into 97 feet of water off the New England coast. This unique oceanographic operation was carried on under contract with the Atomic Energy Commission.

Instead of real atomic materials, the packages contained a brilliant yellow fluorescein dye. The Atomic Energy Commission wanted to know whether such containers break open immediately, gradually disintegrate, or are buried in the bottom.

The Coast and Geodetic Survey reports that the skin divers went overboard from the fantail of the survey vessel Gilbert and stationed themselves at the bottom as the dye-containing packages were dropped from the vessel. The containers

were numbered for identification. These metal drums, weighing up to 1,200 pounds, were packed variously and dropped under varying current conditions. Those solidly-packed with concrete seemed to resist breakage and settle on the bottom.

Slight current did not affect appreciably the downward trek of the "cans;" some moving on a deflected or spiral course. The divers, waiting on the bottom, had to be careful. Underwater "dust" created by the successive bombardment of "cans" limited vision to a few feet at times.

The diving operations were carried on over Browns Ledge, which is twelve miles west from Martha's Vineyard, Mass. The team of four was accompanied by a diving scientist from the U. S. Bureau of Commercial Fisheries.

The Browns Ledge studies are part of a larger project planned to find out what happens to radioactive waste dropped into the sea, so that the best disposal areas and methods can be determined.

Other data were gathered in a disposal area about 20 miles off Boston harbor, where wastes of low radioactivity and obsolete ammunition have been dumped in the past. The depth is about 300 feet. No diving was done here, and the equipment used was tested with a counter for radioactivity when it was pulled aboard. No activity was found.

The direction and speed of the currents at three depths were taken every half hour for 100 hours with meters lowered at points a couple of miles apart. Every hour during the same period, a record was made with a bathythermograph of temperatures at all depths.

Water temperatures were measured as the survey started and ended, all the way from Boston harbor entrance to a point beyond the disposal area.

Many samples of bottom sediment and sea water were gathered for analysis by the U. S. Public Health Service. At Browns Ledge special current and temperature records were made.

Analysis of the water, together with studies of bottom and marine life, made by the Public Health Service, are expected to show the extent of absorption of radioactivity. The current data will help to determine where the materials have been carried.

In some new area where dumping is started, it is planned that the Coast and Geodetic Survey will increase its program of sampling the bottom-dwelling organisms. Many marine animals can concentrate trace elements and may prove to be good indicators of radioactive concentration when examined by bio-radiologists of other Government or private agencies.

According to a news release by the National Academy of Sciences on June 21, 1959, a number of other areas are under consideration for studies comparable to those just completed at Browns Ledge. Twenty-seven such sites were listed for possible use for controlled disposal of packaged low-level radio-active wastes. The techniques used by the Coast and Geodetic Survey, especially with diving oceanographers, provide promise as an effective monitoring measure.

The Coast and Geodetic Survey made a preliminary survey on Georges Bank last summer to test the feasibility of observations and sample collections by diving oceanographers and of measuring bottom currents from anchored buoys.

California

AERIAL CENSUS OF ABALONE SPORT FISHING CONTINUED:

Airplane Spotting Flight 59-12-Abalone: The shore line from Ano Nuevo to Ft. Ross was surveyed from the air (June 22, 1959) by the California Department of Fish and Game Cessna 180 to estimate numbers of abalone sport fishermen and relative intensity of fishing during a very low minus tide on a week day for comparison with similar conditions on a weekend.

Flight conditions were favorable for observation although surf conditions were not as good for the fishermen as on previous dates. In general, fewer

fishermen were on the beaches during this period than were observed approximately one month previously when tidal conditions were similar on a weekend. As noted on previous flights, it was not always possible to tell exactly what the fishermen were doing, whether collecting clams and abalone, or just looking. At some locations their purpose was obvious and they could be readily classified as to the type of fishing activity.

Note: Also see Commercial Fisheries Review, September 1959, p. 20.

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BIOLOGISTS PREDICT TIME AND PLACE OF ALBACORE TUNA RUN FOR THIRD YEAR:

For the third consecutive year California fishery biologists have predicted the time and place where the first albacore run of the year would appear off the California coast. The prediction made in May on the basis of ocean water temperature patterns and currents existing in April, came true at noon on June 5.

Tagging studies and log books kept by commercial fishermen were two of the keys which the biologists used to unlock the secret of the albacore's migrations.

Tag returns disclosed they are the widest ranging nomads of the Pacific Ocean, some making round trips to Japan from California. Log records, and other studies, revealed they are present off California when the run is on in a very narrow range of ocean temperatures--60° to 70° F.--from which they rarely stray.

The first school was spotted 85 miles northwest of Point Arguello, Santa Barbara County, by the California Department of Fish and Game research vessel N. B. Scofield. It had departed Terminal Island on a predetermined course June 1 and found the school just as predicted.

The commercial fishing fleet was notified by radio and immediately thereafter boats from Morro Bay and San Pedro set sail to fish for albacore. The initial run was scattered over a tremendous ocean area.

In previous years, the earliest run of albacore approached California from the general direction of northern Mexico. However, warm water conditions, which have prevailed for the last two years, have apparently pushed the runs much farther north. (Outdoor California, July 1959.)

Canned Fish

CONSUMER PURCHASES, JUNE 1959:

Canned tuna purchases by household consumers in June 1959, were 964,000 cases of which 54,000 cases were imported. By type of pack, domestic-packed tuna purchases were 228,000 cases solid, 589,000 cases chunk, and 93,000 cases grated or flakes. The average purchase was 1.9 cans at a time. About 31.2 percent of the households bought all types of canned tuna; only 2.1 percent bought the imported product. The average retail price paid for a 7-oz. can of domestic solid or fancy was 34.9 cents and for a 6½-oz. can of chunk 28.2 cents. Imported solid or fancy was bought at 29.6 cents a can. June purchases were slightly higher than the 919,000 cases bought in May by 4.9 percent; retail prices in most cases were slightly lower.

During June, household consumer purchases of California sardines were 41,000 cases; and 38,000 cases imported sardines. The average purchase was 1.7 cans at a time for California sardines and 2.1 cans for imported. Only 1.7 percent of the households bought canned California sardines and 2.2 percent imported. The average retail price paid for a 1-lb. can of California sardines was 23.1 cents and for a 4-oz. can of imported 24.9 cents. Retail prices were slightly lower for both California and imported canned sardines. Because of the liberal stocks of canned California sardines, there has been a steady increase in purchases since October 1958.

Canned salmon purchases in June 1959 were 225,000 standard cases, of which 114,000 cases were pinks and 54,000 cases

reds. The average purchase was 1.2 cans at a time. About 15.3 percent of the households bought all types of canned salmon; 7.8 percent bought pinks. The average retail price paid for a 1-lb. can of pink was 56.7 cents and for red 86.8 cents. June purchases were up about 0.9 percent from the 223,000 cases bought in May.

Cans--Shipments for Fishery Products, January-June 1959

Total shipments of metal cans for fishery products during January-June 1959 amounted to 53,800 short tons of steel (based on the amount of steel consumed in the manufacture of cans) as compared with 47,212 tons in the same period a year ago. Canning of fishery products in January-June this year included tuna, Maine sardines, salmon, and shrimp. Shipments of metal cans were lower by 17.6 percent from May to June this year, but higher by 14.5 percent from June 1958 to this June.

During the first six months of 1959 the total shipments of 53,800 tons included 39,508 tons or 73.5 percent shipped to the West Coast area, 12,019 tons or 22.3 percent to the East Coast area, and 2,273 tons or 4.2 percent to the Central area (includes Gulf States).

Continued heavy canning of tuna on the West Coast and a large pack of canned shrimp are principally responsible for the greater use of cans the first half of this year as compared with the first half of last year.

Note: Statistics cover all commercial and captive plants known to be producing metal cans. Reported in base boxes of steel consumed in the manufacture of cans, the data for fishery products are converted to tons of steel by using the factor: 33.0 base boxes of steel equal one short ton of steel.

Central Pacific Fisheries Investigations[1/]

RELATIONSHIP FOUND BETWEEN SEA SURFACE TEMPERATURE AND SKIPJACK TUNA ABUNDANCE:

A curve showing the rate of change of sea surface temperature at the U.S. Bureau of Commercial Fisheries Honolulu Biological Laboratory's Oahu monitoring station exhibited features similar to those found on the curve for 1954, a year during which 14 million pounds of skipjack were landed--one of the best years on record. Further, it was reported that the temporal variation of a feature of these curves (the date when the monthly rate of change of sea surface temperature is zero) had a predictive value, and as this "index" occurred early in 1959, an average or better-than-average Hawaiian skipjack season was predicted. Had the index occurred in the spring (say in March rather than early February), a poor fishing season would have been predicted.

By the end of July the prediction made before the onset of the season was borne out. The landings at the Honolulu cannery during May, June, and July were 1,618,784; 1,560,752; and 2,329,423 pounds. Average landings for those months were 1,026,332; 1,713,269; and 1,940,492 pounds. Landings for 1958 (a poor season) for those months were 168,021; 946,953; and 1,263,489 pounds.

The studies of skipjack behavior were continued in July. The abundance of schools in Hawaiian waters during July provided opportunities for visual and photographic studies aboard the Bureau's research vessel Charles H. Gilbert from the new hull-mounted observation chamber and for comparison of the studies from the chamber with closed-circuit television. Two types of TV were tested; neither was found to be an improvement over observations made from the hull-mounted chamber.

Various types of behavior studies were made; for example, iao (silversides) was compared with nehu (an anchovy) as live bait. When nehu was

1/Research conducted by the Bureau's Honolulu Biological Laboratory is now listed under this heading instead of "Pacific Oceanic Fisheries Investigations."

thrown as chum, large skipjack (25-30 pounds) would move comparatively slowly and along straight paths while the smaller tuna (4-10 pounds) would move quickly and erratically. When iao were used as chum, the actions of the larger skipjack were similar to those of the small fish when chummed with nehu.

The effects of live and dead nehu were also examined. The skipjack schools would immediately leave the boat when dead nehu were used, but a mixture of live and dead bait could be used to a limited extent.

A form of silvery "tinsel glitter" was investigated as a possible bait enhancer. The skipjack, viewed through the ports of the observation chamber, would move toward the glittering particles and then begin feeding upon nehu which were thrown in the water at the same time. Although attracted to a mixture of glitter and live nehu, the tuna were not interested in glitter and dead nehu; in fact they appeared to be repelled by the dead fish.

Federal Purchases of Fishery Products

DEPARTMENT OF DEFENSE PURCHASES, JANUARY-JULY 1959:

Fresh and Frozen Fishery Products: For the use of the Armed Forces under the Department of Defense, almost 2.3 million pounds (value $1.2 million) of fresh and frozen fishery products were purchased in July 1959 by the Military Subsistence Supply Agency field headquarters. On the basis of quantity, this was 2.7 percent more than the amount purchased the previous month, but 23.9 percent less than the purchases in July 1958. The value of the purchases in July 1959 were 2.8 percent higher than in June, but 33.5 percent less than in the same month of last year.

Table 1 - Fresh and Frozen Fishery Products Purchased by Military Subsistence Supply Agency, July 1959 with Comparisons

QUANTITY				VALUE			
July		Jan.-July		July		Jan.-July	
1959	1958	1959	1958	1959	1958	1959	1958
(1,000 Lbs.)				($1,000)			
2,272	2,984	13,618	14,579	1,203	1,809	7,190	8,409

For the first seven months of 1959 purchases totaled 13.6 million pounds, valued at $7.2 million--a decrease of 6.6 percent in quantity and 14.5 percent in value as compared with the purchases for the same period of 1958.

Canned Fishery Products: Tuna and sardines continued to be the principal canned fishery products purchased for the use of the Armed Forces during July 1959. This year through July substantially more tuna and sardines were purchased, and only a very small amount of salmon.

Table 2 - Canned Fishery Products Purchased by Military Subsistence Supply Agency, July 1959 with Comparisons

Product	QUANTITY				VALUE			
	July		Jan.-July		July		Jan.-July	
	1959	1958	1959	1958	1959	1958	1959	1958
	(1,000 Lbs.)				($1,000)			
Tuna	150	779	1,982	2,562	70.0	398.0	938.0	1,288.0
Salmon	1	-	13	1,400	0.5	-	9.5	768.0
Sardine	107	10	776	52	16.0	4.0	116.0	19.0

Note: Armed Forces installations generally make some local purchases not included in data given; actual total purchases are higher because it is not possible to obtain local purchases.

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MILITARY SUBSISTENCE MARKET CENTERS CHANGE TITLES:

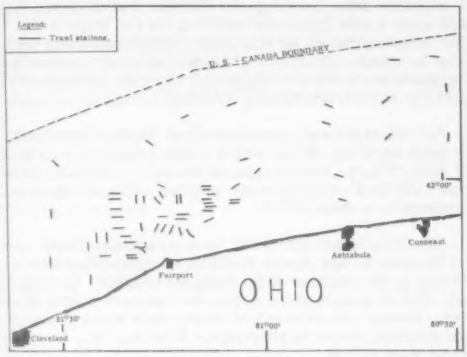
The Military Subsistence Market Centers were redesignated Headquarters, Military Subsistence Supply Agency, effective July 15, 1959. Also, the Field Offices were redesignated either Supply Offices or Purchasing Offices. This change does not affect the responsibilities of the offices involved.

Great Lakes Exploratory Fishing and Gear Research Program

EXPERIMENTAL SMELT FISHING IN LAKE ERIE CONTINUED:

M/V "Active" Cruise 3: Commercial quantities of smelt were taken in trawling operations in South Central Lake Erie during an 18-day cruise of the U. S. Bureau of Commercial Fisheries chartered vessel Active, completed July 23, 1959. Echo-sounding and exploratory-fishing operations were conducted between Cleveland and Conneaut, Ohio, to obtain additional information on the seasonal distribution of smelt and other fish stocks.

A total of 66 tows was completed in the area using a 50-foot two-seam balloon trawl with $2\frac{1}{4}$-inch mesh and a $1\frac{1}{2}$-inch mesh bag. More than 30 tows were made within a 10-mile radius of Fairport Harbor, Ohio. The smelt were found, as in the previous cruise, generally concentrated in waters deeper than 7 fathoms. Tows made on echo-sounder



M/V Active Cruise 3 (July 6-23, 1959).

indications produced catches up to 500 pounds of smelt an hour and smaller mixed catches of yellow perch, sheepshead, and burbot. Best catch results were experienced during early morning and late afternoon hours when smelt were observed to be just off the bottom. Smelt were taken in three general sizes--12-18 per pound, 30-35 per pound, and 35-40 per pound. Large numbers of the smaller fish were observed escaping from the trawl as it surfaced.

During night-fishing operations smelt were observed to rise from the bottom into midwater regions and to return to the bottom at sunrise. Night operations with lights resulted in the attraction of large quantities of emerald shiners with only a few smelt appearing at the edge of the illuminated area. Small surface schools of fish off Fairport and Cleveland in daylight were also identified as emerald shiners. No seine sets were attempted.

Surface temperatures ranged from 69° F. to 76° F. Bottom temperatures ranged from 45° F. at 12 fathoms to 70° F. at 6 fathoms.

The M/V Active departed about August 3, 1959, on the fourth 15-day exploratory fishing and gear research cruise. The area of operations was to be between Conneaut, Ohio, and Buffalo, N. Y., with visits scheduled to the ports of Erie, Barcelona, and Dunkirk.

Note: Also see Commercial Fisheries Review, Jan. 1959, p. 33, Feb. 1959, p. 20, and June 1959, p. 36.

Great Lakes Fishery Investigations

SURVEY OF SOUTHEASTERN LAKE SUPERIOR CONTINUED:

M/V "Cisco" Cruise 3: Work during Cruise 3, between June 30-July 14, 1959, by the U. S. Bureau of Commercial Fisheries research vessel Cisco in the area of southeastern Lake Superior from Marquette, Mich., to Whitefish Bay duplicated efforts of Cruise 1 to reveal seasonal changes. Standard gangs of gill nets were set at 25, 50, 75, and 100 fathoms off Grand Marais, Mich.; at 25, 35, 50, and 70 fathoms in Whitefish Bay; at 35 fathoms in Munising Bay; and at 2-10 fathoms in the west channel to Munising Bay (south of Williams Island).

Cisco, research vessel of the Service's Great Lakes Fisheries Investigations.

Chub catches in gill nets were generally light and did not differ much from those made during Cruise 1. The average number of chubs per lift was 117, disregarding the set at 25 fathoms off Grand Marais and the one in the west channel to Munising Bay, in which no chubs were taken. The largest number taken was 177 in Munising Bay, of which 169 were Leucichthys hoyi. This species and L. reighardi were the commonest chubs in all catches, except at 75 fathoms off Grand Marais, where L. kiyi was abundant and L. hoyi rare, and at 100 fathoms off Grand Marais, where 59 of the 73 chubs were L. kiyi. L. zenithicus and L. nigripinnis were uncommon at all locations. The spawning period of L. reighardi still had not ended as a few of those taken were ripe or nearly so.

Lake herring were scarce except for 26 large fish (a few near one pound) taken at 25 fathoms off Grand Marais. Seventeen lake trout were netted, none at a depth greater than 50 fathoms. Ten of the lake trout were marked with spaghetti tags and released. The nets set in Munising Bay produced

107 of the unusually slow-growing whitefish which inhabit the deeper water of the Bay. Other species in the gill nets were smelt (numerous in only the 25-fathom set in Whitefish Bay), 1 burbot, 184 round whitefish, 85 longnose suckers, 1 white sucker, 2 alewives, and 2 yellow perch. The last five species were caught only in the shallow set in the west channel to Munising Bay.

Trawls were towed at several depths between 10 and 20 fathoms in Shelter Bay, east of Grand Island and off Grand Marais, and at 50 and 75 fathoms off Marquette. No baby lake trout were taken, despite the fact that in the Shelter Bay area they were present in moderate numbers during the same season in 1953. Catches of slimy sculpins and ninespine sticklebacks in the shallow tows were considerably larger than during Cruise 1. Somewhat over 1,000 of the latter species were caught in a 10-minute tow at 10 fathoms off Grand Marais. Present in only small numbers in the shallow tows were yearling smelt, trout-perch, pygmy whitefish, and small unidentified coregonids. A 20-minute tow at 50 fathoms off Marquette produced 58 L. hoyi, 48 L. reighardi, 6 L. kiyi, 1 L. zenithicus, 1 lake herring, 65 deep-water sculpins, 25 slimy sculpins, and 7 ninespine sticklebacks. A 20-minute tow at 75 fathoms produced 31 L. kiyi and 2 deep-water sculpins.

Several unidentified fish fry were caught near the surface in half-meter plankton nets of large mesh (No. 32 grit gauze) in Batchawana Bay, Ontario, and in Shelter Bay. No fry, however, were caught in similar tows in several other areas.

Limnological data were collected at regular stations off Grand Marais (45 fathoms) and in Whitefish Bay (70 fathoms). At the beginning of the cruise homothermous water (about 4° C. or 39.2° F.) was present at distances greater than 5 miles offshore from Grand Marais. Considerable surface warming, however, had occurred since Cruise 1 in all other areas visited, and had extended to 18 miles offshore from Marquette by the end of the cruise. Surface water temperatures were mostly 12° C. to 14° C. (53.6° F.-57.2° F.). Extremes of 3.3° F. and 16.3° C. (38.0° F. and 61.4° F.) were encountered.

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WESTERN LAKE SUPERIOR FISHERY SURVEY CONTINUED:

M/V "Siscowet" Cruise 3, July 13-22, 1959: This cruise was devoted to studies of the midsummer distribution of the lake herring in western Lake Superior. Work was conducted southeast of Michigan Island, east of Outer Island, north of York Island, northeast of Two Harbors, Minn., west of Bear Island, northwest of Sand Island, and north of Rocky Island.

The research vessel Cottus of the Fisheries Research Board of Canada joined the Siscowet for five days during the cruise. Both vessels are equipped with fish-magnifying fathometers and large areas were scanned to locate concentrations of lake herring. The vessels operated together on parallel courses to determine the size of individual schools detected on the fathometers.

Fathometer observations suggested very small and scattered schools of lake herring at each location. The schools apparently were small as at no time did both vessels record the same schools even though the vessels were operating as close as 100 feet apart. Nearly all the lake herring observed on the fathometer were located between 5 and 15 fathoms below the surface in waters 20 to 35 fathoms deep.

Bull nets (gill nets 300 feet long and 20 feet deep) with mesh sizes of $2\frac{1}{2}$ and $2\frac{5}{8}$-inch were set to capture lake herring. An oblique set of three bull nets made from the surface to the bottom at 160 feet southeast of Michigan Island took only 14 lake herring. Thirteen of these fish were taken in the portion of the net fishing from 0 to 70 feet. The surface temperature was 62.0° F.

An identical set made north of York Island took 30 lake herring, 26 of which were taken from 0 to 70 feet. Three specimens (2 males, 1 female) were ripe. Several others were gravid. The surface temperature was 64° F.

An oblique set of 5 bull nets was made from 0-120 feet on the north shore near Two Harbors, Minn. Lake herring (140 fish) were taken in this set, 135 of which were captured between 0 and 40 feet. Nearly 80 percent of these fish were females and several were nearly ripe. The surface temperature was 53° F.

A floating gang of 5 bull nets was drifted in an area north of Eagle and Sand Islands between the hours of 2100 and 0900. The nets were floated about 18 inches below the surface in water from 20 to 35 fathoms deep. During this operation one end of the gang was attached to the Cottus while the Siscowet cruised slowly around the nets scanning with the fish-magnifying fathometer. Several small schools of fish were recorded. Between 0100 and 0300 the Siscowet took 10-minute horizontal plankton tows with a Clark-Bumpus plankton sampler at 12 feet, 40 feet, and 120 feet. Plankton concentrations at 12 feet were extremely heavy; concentrations at 40 feet were considerably less and at 120 feet practically no planktons were captured. Plankton samples were collected by the same method the following day at 1100 with identical results. The floating gang had drifted about 1.5 miles and the catch consisted of 45 lake herring, 5 chubs (Leucichthys hoyi), 2 brown trout, and 1 rainbow trout. The stomachs from about 20 lake herring were examined and all were empty but one which contained several small moths (unidentified). The surface temperature was 67° F.

An oblique set was made in the area where bull nets were drifted a day earlier to cover the depths which were not fished by the floating gang. Five bull nets were set from 0 to the bottom at 120 feet. Lake herring (44 fish were taken, 38 of which were captured between 20 and 60 feet. Only 4 lake herring were taken between 0 and 20 feet, the area fished by the floating gang. Stomachs from all lake herring were examined and several contained plankton. Other species taken were 13 chubs (9 L. hoyi, 4 L. zenithicus), 1 lake trout, and 1 smelt. Water temperatures in this area varied from 69° F. on the surface, 44° F. at 75 feet, and 39° F. at 175

feet. It was again demonstrated that herring are not found in abundance in water with temperatures exceeding 50° F.

Four 15-minute trawl tows were made west of Bear Island at depths of 6, 7, 14, and 18 fathoms. Two tows at 6 and 7 fathoms took only 5 ninespine sticklebacks, 3 smelt, and 1 small lake herring. The tow at 14 fathoms captured 53 small (4- to 6-inch) lake herring, 20 smelt, 20 slimy muddlers, and 1 stickleback. The tow at 18 fathoms captured 46 smelt, 10 chubs (L. hoyi), 4 lake trout, and 18 slimy muddlers.

One 15-minute tow was made in 36 fathoms northwest of Sand Island. The catch consisted of 77 chubs (76 L. hoyi, 1 L. kiyi), 75 slimy muddlers, 25 spoonhead muddlers, and 1 lake trout.

Three 10-minute tows were made with a ½-meter (No. 32 grit mesh) plankton net on a shallow rocky shoal just north of Rocky Island. Mayfly larvae made up the bulk of the catch; no fish larvae were captured.

Surface temperatures varied from 69.2° F. northwest of Sand Island to 53.6° F. near Two Harbors, Minnesota. Bottom temperatures remained at about 40° F.

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WESTERN LAKE ERIE
BIOLOGICAL RESEARCH CONTINUED:

M/V "George L." Cruise 5, July 1959: Intensive trawling with the M/V George L. and the auxiliary workboat Madtom continued during July to gather further information on the distribution, growth, and food of the yellow pike (walleye) and other young fish. Young-of-the-year yellow pike were found in abundance along the shoreline from Huron west to Toledo, and north to the mouth of the Detroit River. Most of the young yellow pike were found near shore in water 8-15 feet deep over a sand bottom. In late July, the young-of-the-year fish were about 5 inches long and had begun to move into deeper waters. The largest number of young yellow pike (75) taken in one 10-minute tow was near East Harbor.

Although young fish were common in Sandusky Bay, none were found in Maumee Bay. Young yellow pike were rarely taken by trawling near Pelee, North Hen, Kelleys, or the Bass Islands.

Young fish most commonly taken with young yellow pike were yellow perch, white bass, and spottail shiners. These species also made up most of the food of the young yellow pike.

A study to determine the variations in catches of fish by trawls was undertaken. Tows were made at three stations of different depths in the morning, afternoon, and night for 3 consecutive days near East Harbor. Great variations in the catches of young fish were observed. On the first two days all young yellow pike and other species 1-year old or older were fin-clipped and returned to the water in an attempt to determine movement and rate of recapture in the area. Only a few of the hundreds of fin-clipped fish were recaptured.

A 6-inch muskellunge, the first of this species taken by our investigations, was taken by trawl near East Harbor.

Gulf of Mexico Gear Research Program

SHRIMP-TRAWL PERFORMANCE OBSERVED BY UNDERWATER TELEVISION:

M/V "George M. Bowers" Cruise 21: To obtain underwater movies of the performance of various types of Gulf of Mexico shrimp trawls, the U. S. Bureau of Commercial Fisheries exploratory fishing vessel George M. Bowers on August 3, 1959, completed the second in a series of cruises. The observations and photographs were made by SCUBA divers from a diving sled towed by the vessel in the vicinity of Panama City, Fla.

A total of 5,100 feet of underwater motion pictures of shrimp-trawling gear was obtained during the cruise. Complete records of the performance of the various components of a 40-foot flat shrimp trawl were obtained. Comparisons were made of chain doors and bracket doors, various amounts of chain on the footrope, various headrope floatation devices, and various bridle lengths at varying vessel speeds.

A 40-foot semiballoon shrimp trawl was photographed with some of the variations noted above, including operation with and without a "tickler" chain.

Cruise 22: The M/V George M. Bowers operated off Panama City on the third of a series of cruises to study the performances of various designs of Gulf of Mexico shrimp trawls. Observations and 2,700 feet of motion-picture film of trawls in action were made by divers who rode a diving sled towed by the vessel. The trip took place August 19-29, 1959.

Performances of two 40-foot trawls, rigged with several different doors and door settings, were recorded under various towing speeds and using different scopes of trawling warp. Towing speeds of over 3.5 knots were realized during these tests.

Louisiana

GOOD OYSTER SET INDICATES FUTURE BUMPER CROP:

A big increase in oyster production in Louisiana is expected from shell-planting operations in Balck Bay in Plaquemines Parish, and in the vicinity of Petit Pass Island, Half Moon Island, and Little Raccoon Island in St. Bernard Parish.

The Chief of the Oysters, Water Bottoms and Seafood Division of the Louisiana Wild Life and Fisheries Commission said that some 350,000 barrels of clam and oyster shells had been planted in the designated areas. It further was reported that 92 percent of clam shells in the Black Bay area already have taken on spat and promise to produce a fine crop of seed oysters.

Barring unforeseen eventualities and if the tests continue to prove successful, a bumper crop of seed oysters will be developed within 15 months. The seed oysters then will be available to oystermen for transplanting on their own growing bottom.

The areas being planted by the Commission will be closed to oyster fishing until at least September 1960, it was pointed out. Mississippi oyster firms have returned--without cost to the Commission--200 barrels of steamed oyster shells for each 1,000 barrels of oysters taken in Louisiana waters. Those shells are being planted in the Little Raccoon Island area.

In 1956, the Commission planted 50,000 barrels of oyster and clam shells. From beds thus created, 150,000 barrels of seed oysters were produced. (Louisiana Conservationist, July-August 1959.)

Haddock

LANDINGS FOR JANUARY-JUNE 1959 AT RECORD LOW:

Haddock landings from Georges Bank hit a record low for the first half of 1959. The haddock abundance index, maintained by U. S. Bureau of Commercial Fisheries biologists since 1931, reveals a drop to 9,700 pounds per day per vessel for the first six months of 1959, the first time the catch level for large otter trawlers has dipped below the 10,000-pound-per-day level.

The drop in haddock landings at New England ports to about 59 million pounds during January-June 1959 (8 million pounds less than in the same period of 1958) came as no surprise to Bureau biologists who predicted last fall that haddock catches would be low in 1959.

The Director of the Bureau's Fishery Biological Laboratory at Woods Hole, Mass., reports that haddock is expected to be in short supply for at least another year, with some improvement expected in the summer of 1960.

Reason for the scarcity is thought to be poor survival of young haddock from spawnings in recent years because of unfavorable environmental conditions. What these conditions are is not known at the present time, but they may be related to changes in water temperature, changes in the pattern of ocean currents, increases in predators, decreases in plankton upon which young fish feed, or possibly to disease.

Result of the poor survival in recent years is a particularly severe scarcity of younger fish, two- and three-year-old haddock which are sold on the market as "scrod." Catches of larger haddock have held up fairly well. The shortage is most acute at the eastern edge of Georges Bank, some 250 miles from Boston, probably the world's greatest haddock-producing ground.

On the optimistic side, research vessel surveys of the banks in the fall of 1958 revealed good concentrations of young-of-the-year haddock of the 1958 brood. These baby fish, as yet too small to be taken by fishermen's nets, are due to enter the fishery when they are two years old in 1960. If their abundance lives up to present expectations, haddock catches will improve markedly in the summer and fall of 1960.

Results of the Bureau's 1959 survey, which starts in September, will provide

an up-to date measure of the abundance of the 1958 brood and provide biologists with the basis for a more definite estimate of the 1960 catch level. The survey will also measure the abundance of the 1959 crop, which will first appear in the catches in 1961 and provide the basis for predicting catches for 1961. Stocks of haddock are presently so reduced that several good year-broods will be required to restore abundance to a normal level.

Maine Sardines

CANNED MAINE SARDINE STOCKS, JULY 1, 1959:

Distributors' stocks of Maine sardines totaled 176,000 actual cases on July 1, 1959--down 8,000 cases or 4.3 percent from the 184,000 cases on hand July 1, 1958. Stocks held by distributors on June 1, 1959, amounted to 197,000 cases and on April 1, 1959, totaled 254,000 cases, according to estimates made by the U. S. Bureau of the Census.

Canners' stocks on July 1, 1959, totaled 422,000 standard cases (100 3¾-oz. cans), an increase of 36,000 cases (9.3 percent) as compared with July 1, 1958, and an increase of 55.1 percent (150,000 cases) from the 272,000 cases on hand June 1, 1959. However, stocks on hand July 1, 1959, were 11.0 percent below the 474,000 cases on hand April 1, 1959.

For the 1958/59 season (beginning April 15, 1958), there was an available supply of 2,434,000 standard cases (413,000 cases carried over from the previous season plus a pack of 2,021,000 cases). The pack from April 15 to July 1, 1959, was 363,000 standard cases and the carryover as of April 15, 1959, was about 420,000 standard cases.

BOYS' CLUBS OF AMERICA "SARDINE SEACOOK" CONTEST:

The Boys' Clubs of three states (New York, excluding Greater New York, Massachusetts, and Connecticut) entered a novel sardine cooking contest, simply called "Sardine Seacook." Some 150 clubs in the four states were involved. The contest was sponsored by the Boys' Clubs of America and the Maine Sardine Council.

In view of the fact that a great many Boys' Clubs have cooking facilities within their clubhouses, the purpose of the contest was to encourage youngsters to learn more about Maine sardines, according to a news release from the Maine Sardine Council.

Existing or original recipes were allowed. Judging was based on taste, appearance, convenience of preparation in relation to the whole dish, nutritive value, and also the boy's age is taken into consideration.

After preliminary judging in the clubs themselves, a panel of food experts in New York City selected three winners from each state as state finalists. These finalists, and their executive directors, were brought to their state capital by the Maine Sardine Council for an all-expense-paid weekend, during which a "cook-off" was held to determine the State Champ. The boys met important officials of their state and were given a guided tour of the capital.

The State Champions and their executive directors went to Maine on August 28 for a week's all-expense-paid vacation as guests of the sardine industry. They met the Maine's Governor, visited points of interest, and enjoyed a full program of boating, fishing, swimming, etc. The final cookoff was held in the model kitchens of the Central Maine Power Co. at Augusta on September 1. The recipes and the

Table 1 - Canned Maine Sardines--Wholesale Distributors' and Canners' Stocks, July 1, 1958, with Comparisons

Type	Unit	1958/59 Season					1957/58 Season			
		7/1/59	6/1/59	4/1/59	1/1/59	11/1/58	7/1/58	6/1/58	4/1/58	1/1/58
Distributors	1,000 Actual Cases	176	197	254	268	312	184	237	293	230
Canners	1,000 Std. Cases 1/	422	272	474	891	1,037	386	235	476	1,111

1/ 100 3¾-oz. cans equal one standard case.

* * * * *

sardine dishes prepared by the State finalists at the final cookoff were selected from among more than 1,100 submitted by boys representing 150 clubs in the three states.

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CANNED SARDINES SERVED AT GIRL SCOUT ROUNDUP:

Ten thousand girl scouts from all 50 states enjoyed Maine sardine sandwiches at a July 6 luncheon during their National Roundup, held at Colorado Springs, Colo., from July 6-12, 1959.

The sardines, supplied by the Maine Sardine Council, were served in an attractive manner and hundreds of the girl scouts ate them for the first time.

Maine sardines were also the principal item on the luncheon menu on Friday, July 9, when they were featured in a salad combination.

Council representatives attending the National Roundup to supervise the preparation of the dishes were pleased with the acceptance and popularity of the Maine seafood.

About 35 girls from the Pine Tree State were among the hungry diners who enjoyed an exciting schedule of activities in this beautiful Rocky Mountain area.

A Council spokesman stated that the contribution of 10,000 cans of sardines had been made to assist the Girl Scout movement as well as to introduce the product to many new potential users. Sardines had never before been served at a girl scout Roundup.

Two years ago the Council conducted a similar promotion with the National Boy Scout organization when 50,000 boys were served the item twice during the 4th Jamboree at Valley Forge, Pa.

The sardine cans were packed with a specially-designed cover which made a big hit with the girls and were popular souvenir items.

Marine Telephone Cables

TRAWLER-TELEPHONE CABLE MISHAPS ENDANGER LIVES AND PROPERTY:

From Newfoundland to Scotland, California to Hawaii, and from the State of Washington to Alaska, voices now travel beneath the high seas via submarine telephone cables. Like the voices which travel along miles of land cable, the submarine version is ever in danger, but from an unexpected quarter--the fishing trawler.

Conversely, these underwater communication systems provide a day-to-day threat to the livelihood of the trawler fishermen. Unlike telegraph cables, the recently established voice links in the Atlantic and Pacific carry as much as 2,500 volts of electricity. Attempts at severing a voice cable from trawler gear could seriously injure fishermen and, in some cases, even prove fatal.

Because of the immense complexities involved in deep-sea telephone cables, a 3-point plan aimed at reducing trawler-cable mishaps has recently been launched by the Long Lines Department of the American Telephone and Telegraph Company. Trawler captains are asked to: (1) familiarize themselves with charts showing underseas telephone cable routes and to avoid them as much as possible in trawling missions; (2) avoid dragging nets or dropping anchors or heavy gear near cable routes; and (3) avoid starting trawling runs that would bisect cable positions.

Fishermen are urged to use extreme caution in the event a trawling net or otter board becomes entangled with an underseas cable. The telephone company will reimburse the fishing trawler for whatever equipment has been damaged or lost in order to save the cable. Application of this 3-point safety formula when trawling near cable positions will protect telephone and telegraph communications as well as trawling equipment. This is a mutual operation and one that must be solved on the basis of mutual consideration. Charts showing the cable areas can be obtained by writing the Long Lines Department, American Telephone and Telegraph Company, 32 Avenue of the Americas, New York 13, New York.

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Marketing

EDIBLE FISHERY PRODUCTS MARKETING PROSPECTS, FALL 1959:

Consumption of fishery products per civilian in the United States during the fall of 1959 is expected to average a little higher than a year earlier. Supplies of the processed items--particularly the frozen--will be heavier this fall as compared with the fall of 1958, and retail prices will average somewhat lower for popular items such as frozen fillets and shrimp.

Commercial landings of food fish and shellfish begin to build up seasonally in early spring and usually reach a peak around midyear. Total landings this year may be a little lower than in 1958 but frozen stocks are higher and imports are expected to be heavier this year than last.

At the end of June 1959 supplies were somewhat greater than a year earlier because of stocks carried over from earlier in the year and heavier imports. Commercial landings were about unchanged. Among the major items imported, the increase over the first half of 1958 was heaviest for frozen groundfish fillets (cod, haddock, hake, pollock, and cusk, and ocean perch), frozen shrimp, and canned tuna in brine. Retail prices of fishery products averaged somewhat higher this January-June than last.

This analysis appeared in a report prepared by the Agricultural Marketing Service, U. S. Department of Agriculture, in cooperation with the Bureau of Commercial Fisheries, U. S. Department of the Interior, and published in the former agency's July 1959 release of The National Food Situation (NFS-89).

Massachusetts

FROZEN FOOD LAW ADOPTED:

Late in July 1959 the State of Massachusetts passed a law (containing punitive provisions), which would give the Director of Food and Drug of that State the power to set up and enforce a code to safeguard the handling of frozen foods. Shortly before that time the Association of Food and Drug Officials of the United States had held its annual meeting in Boston, at which time a model code for the handling of frozen foods was drafted and approved.

The Director of the Food and Drug Division, Department of Public Health, Mass., has announced that the law does not become effective until 90 days after enactment. Industry committees were set up to assist the Director in the implementation of the law, after which a series of public hearings were due to be held in order to obtain the widest possible cross-section of opinion on the operation and enforcement of the law and regulations resulting therefrom.

North Atlantic Fisheries

Exploration and Gear Research

UNDERWATER TELEVISION USED TO STUDY OTTER-TRAWL PERFORMANCE:

M/V "Delaware" Cruise 59-8: Observations on otter-trawl performance utilizing underwater television apparatus (U/WTV) were carried out by the U. S. Bureau of Commercial Fisheries exploratory fishing vessel Delaware during a July 8-23, 1959, cruise. The underwater observations were recorded on film for use in studies on this type of gear.

Fishing activities were carried on near the southern portion of Stellwagen Bank, about 15 miles Northwest of Provincetown, Mass. This location provided smooth sandy bottom and water free from excessive turbidity.

The U/WTV gear utilized during these operations was an "Image-Orthicon" unit, developed and used by the Bureau Fisheries Biological Laboratory at Woods Hole, Mass. With the U/WTV camera positioned near the mouth of the trawl, film recordings from the TV monitor were accomplished using a conventional 16 millimeter motion-picture camera. Motion pictures were made of the footrope of a No. 41 New England trawl rig-

ged with rollers and with chain gear. A series of scenes were recorded showing the action of the footrope at varying speeds. Of interest in some of the sequences was the presence of several species of fish--notably cod, dogfish, skates, and flat fish. The location of the U/WTV camera was changed several times to allow different views of the gear.

Taken from a TV monitor aboard the M/V Delaware, research vessel of the U. S. Bureau of Commercial Fisheries. View of trawl net on bottom with rollers on right, net moving from the the right towards the left of the picture. The fish are dogfish.

The results obtained were generally favorable, considering the fact that during a large portion of the cruise heavy fog reduced available light to a minimum. Over 2,500 feet of film were exposed during the operations which extended from July 8 through July 23.

North Atlantic Fisheries Investigations

BOTTOM SEDIMENTS AND BOTTOM ANIMALS COLLECTED:

M/V "Delaware" Cruise 59-9: A total of 152 bottom sediment samples were collected along the southern edge of the Gulf of Maine and on Browns Bank by the U. S. Bureau of Commercial Fisheries research vessel Delaware, during an August 5-11 cruise. The samples were collected over an 800-mile track at 5-mile intervals with a Smith spring-loaded bottom sampler.

The samples of bottom sediment will be studied for particle size and to obtain a quantitative measure of the organic matter contained in the sediments. In addition, 95 samples of various species of bottom animals were collected for further study. Among the many interesting specimens of bottom animals was four specimens of the rare mud crab, Calocaris macandreae.

Bathythermograph casts were made at all stations and drift-bottle hauls were released at 120 stations.

Oregon

LICENSE FEE FOR RETAILERS OF PACKAGED FROZEN FISH AND SHELLFISH INCREASED:

A new law affecting firms retailing packaged frozen shellfish only and packaged frozen food fish was announced on August 4, 1959, by the Oregon Fish Commission. The law requires those dealers to pay $3 for their packaged frozen food fish and packaged frozen shellfish license instead of the $1 fee previously charged. The increased fee will be effective August 5.

Those issued the $1 license between April 1 and August 4, 1959, will be allowed to operate on the license and within regulations until March 31, 1960.

There are approximately 1,182 dealers in the State of Oregon retailing packaged frozen fish and shellfish under the frozen package license regulations, and 1,237 persons are licensed in the general retail category as food fish and shellfish dealers yearly.

The license fee of $7.50 for dealers operating in the general food fish and shellfish category was not changed.

Persons dealing in only the frozen package business are required to have

the $3 license and need not purchase the general $7.50 license.

The $3 frozen package license as specified by Oregon Revised Statutes 508.180, listed in the Oregon Commercial Fisheries Code, applies only to retail activities dealing in species of food fish or shellfish which are wrapped, frozen, and placed in packages to which a legible lable is stamped or printed showing the name, address, brand, and trade name of the original processor or wholesale distributor under which the package is marketed, and the kind of frozen product contained therein, for distribution and ultimate sale in the original package.

Oysters

LONG ISLAND SOUND OYSTER AND STARFISH SET LIGHT AS OF JULY 30:

Setting of starfish which began on July 2, 1959, continued virtually without interruption during July, but fortunately was not too heavy. The intensity of starfish setting at the 10 stations surveyed by biologists of the U. S. Bureau of Commercial Fisheries Biological Laboratory at Milford, Conn., varied from a low of 10 (per 40 oyster shells, inside surface only) to a high of 237 over the July 2-30 period.

Although many partially-spawned oysters were observed in July, oyster larvae were virtually absent from plankton collections. The first larvae in Long Island Sound were found in samples taken on July 30, when a few larvae in the early umbo stage were collected at a station in New Haven Harbor in one of the 200-gallon samples.

No oyster set was observed on any of the oyster collectors examined until July 30. (Bulletin No. 2, August 4, 1959.)

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BETTER SET PREDICTED FOR CERTAIN MARYLAND WATERS:

The 1959 set of baby oysters in certain lower Maryland waters promises to be much better than in other recent years, a shellfish biologist from the Chesapeake Biological Laboratory at Solomons, Md., reported on August 11. This was in cheering contrast with the recent announcement that last season's harvest of adult oysters was the smallest in Maryland history.

The count of spat (young oysters) on test shells in St. Mary's River is ten times what it was last year. The Barren Island area on the Eastern Shore across from Solomons is producing four times as much, and is still going strong. These areas, along with Eastern Bay and Holland Straits bars, are the primary sources of seed oysters used in rebuilding the Chesapeake's oyster bottoms. The set in Holland Straits is running about the same as last year, although its spawning season isn't quite over. Honga River is showing no change.

The biologist and his helpers have been checking test bags of oyster shells placed on the bars. The shells are picked up weekly, from late May to early October, and examined under the microscope at Solomons to determine the extent of spat set. The program has been in existence 15 years.

Test-shell examinations on a weekly basis provide another type of information--the time when oysters on a bar spawn. Bars in the Chesapeake vary one from the other as to spawning dates--most start some time in June--but each has its own distinctive "birthday," or several of them.

Such information is useful to Tidewater Fisheries Commission personnel and private planters wanting to know just when to plant shell stock. The shells make good homes for oyster spat if barnacles and other fouling organisms don't arrive first. The best shell planting time is a week before the peak of setting.

Prior to general recognition of the shell-foul problem, thousands of bushels of shell were being distributed by Maryland up to 5 and 6 months ahead of time. This is somewhat changed today; Tidewater Fisheries personnel often work night and day to throw clean shells over-

board during the crucial June days when oyster larvae are ready to set.

Keeping close tabs on test-shell spat attachment is not an exact indication of what will take place on natural oyster bottom, but a trend of the numbers of test shell spat has heretofore been followed by a comparable trend in spat on natural and planted bottoms.

Barring some upsetting act of nature a presentable crop of spat should be noted in St. Mary's River and bay waters near Barren Island this fall. It most likely won't approach the St. Mary's strike of 3,000 spat to the bushel in 1941, but it should be considerably above the 40 or 50 considered necessary for a natural bar to continue reproducing itself.

Shellfish

RESEARCH ON CONTROL OF SOFT-SHELL CLAM AND OYSTER PREDATORS:

A lindane barrier experiment to exclude green crabs from clam flats is being conducted at Pope's Creek at Wells, Me., by the U. S. Bureau of Commercial Fisheries. In this experiment, five trawl lines of about 100 hooks each have been placed across the mouth of Pope's Creek and are held on bottom by lead weights. Each hook is baited with an alewife which has been soaked in lindane to make it poisonous to green crabs. Presumably, green crabs coming from the sea will find this bait and feed on it before reaching the clam flats.

A similar barrier was successful in the smaller Upper Landing Creek last year. This experiment is being conducted in cooperation with the town of Wells and the Maine Department of Sea and Shore Fisheries. A similar experiment is being conducted by the town of Kittery, Me., in cooperation with the Maine Department of Sea and Shore Fisheries.

The Bureau's Milford, Conn., Biological Laboratory used certain vital dyes, a saturated salt solution, and chemicals to control and often eliminate fouling organisms, such as hydroids, tunicates, worms, and mussels. Sulfa drugs, antibiotics, fungicides, and temperature manipulations protected young mollusks from diseases which attack young oysters and hard-shell clams grown under hatchery conditions.

Studies at the Milford Laboratory indicate that creating chemical barriers around shellfish beds to prevent enemies from entering them may be effective, especially against oyster drills and other predacious gastropods.

The Annapolis, Md., and Franklin City, Va., Biological Laboratories developed a promising method of controlling the movement of the drills Urosalpinx and Eupleura which prey on oysters. This method consists of erecting around an oyster bed a low plastic screen fence with a strip of copper attached to it. Since drills will not cross this copper strip, they do not enter the oyster bed. In a field test of this method in 1958 on a half-acre plot, 75 percent of the oysters survived while nearly all oysters in a nearby unprotected area were lost.

South Carolina

FISHERIES BIOLOGICAL RESEARCH PROGRESS, APRIL-JUNE 1959:

Oyster Research: There was no significant change in growth rate of experimental oysters during this quarter as compared to similar periods of time in other years. Spawning and setting began a few days earlier this year, and by the first part of June the set on clean steamed cultch shell in suspended wire baskets was about 10 spat per square inch.

Mortalities began to increase with the advent of warmer weather in June. One catastrophic mortality of unknown cause was noted in a single tray of oysters kept in We Creek. In May over 50 percent of the oysters in this tray died in a three-week period. Strangely enough, other specimen oysters in another tray lying immediately adjacent were not killed.

Young seed oysters from Long Island Sound planted in November of last year have shown good growth and low mortali-

ties. Growth and mortality rates of these imported seed follow step by step with native seed of similar age.

The experiments in the one-acre oyster pond on the affect of exposure to air were continued. In these experiments, approximately 500 adult oysters are exposed to sunlight for six hours a day; 500 are exposed to air, but are shaded from direct sun; and the same number are continuously submerged. The cumulative mortality of these experimental oysters since October 1958 for the continually submerged oysters was 18 percent; for the shaded oysters, 2 percent; and for the sun-exposed oysters, 4 percent. The higher mortalities of the sun-exposed oysters may have been due to extremes of temperature experienced during still, hot days. Monthly checks on Dermocystidium infection showed that the air-exposed but shaded oysters had the highest infestation.

Shrimp Research: An analysis of 89 experimental trawl hauls made at regular stations throughout the period showed that brown-spotted shrimp (Penaeus duorarum) were twice as abundant as during the same period last year. White shrimp (P. setiferus) were seven times more abundant; and brown shrimp (P. aztecus) were five times as abundant. Commercial shrimp fishermen reported similar trends and all indications are that the shrimp season of 1959 will be the best in several years. However, the sharp decline in price in June may seriously affect the economy of the industry in South Carolina.

Crab Research: Data obtained from trawling indicate that blue crabs were about in the same degree of relative abundance from April-June this year as in the same quarter a year ago. One commercial crab plant operator reported a sharp decline in the volume of crabs caught on trot lines and in pots during June. The explanation for this may lie in unusually high tides, easterly winds, and high water temperatures. The shortage was not reflected in the experimental trawls.

Returns from the cooperative crab tagging program carried out by this Laboratory and the U. S. Bureau of Commercial Fisheries at Beaufort, N. C., show that, if the returns are sufficient to be significant, the trend of movement is to the southward. Several crabs moved from this vicinity of Bears Bluff to Savannah and a few went as far south as Sapelo Island, Ga. Additional tagging is planned during August to see if summertime tagging will change the barely apparent directional trend.

Pond Culture: Although large-scale experiments in pond culture of shrimp have been curtailed for lack of personnel, some tests are being made to determine the feasibility of using stocking methods in common practice in the Far East.

Using the pressed tea seed cake or "sapolin" supplied to the Bears Bluff Laboratory by the U. S. State Department, some preliminary tests have been made to determine the value of this product in the control of predaceous fishes. With water temperatures about 25° C. or about 77° F. and salinities of about 25 parts per thousand, even minute amounts of tea seed cake were found to be exceedingly effective in killing fish, but leaving shrimp unharmed. Spot, croaker, mullet, Fundulus, and Cyprinodons were killed rapidly without harm to white or brown shrimp. (Progress Report No. 40, April-June 1959, of the Bears Bluff Laboratories, Wadmalaw Island, S. C.)

Note: Also see Commercial Fisheries Review, July 1959, p. 43.

Tuna

INDUSTRY PROBLEMS DISCUSSED AT JOINT GOVERNMENT INDUSTRY MEETING:

Representatives of several Government agencies met July 8 with representatives of the Pacific Coast tuna industry to discuss the situation of the industry and to obtain views as to ways the Government might be of assistance. Assistant Secretary Ross Leffler represented the Department of the Interior and Deputy Assistant Secretary for Economic Affairs Thomas Beale represented the Department of State. Officials of the Departments of Commerce and Navy were also present.

A spokesman representing the Southern California segment of the industry made a number of proposals for immediate, intermediate, and long-range action by the Government.

Among these were suggestions for emergency loans, flexibility in the administration of present Government loan programs, a Government-to-Government conference with the Japanese covering a range of topics from conservation to price and volume controls, implementation of a tuna research program developed at the May 19-21 meeting at La Jolla, Calif., and action on vessel mortgage insurance and construction differential subsidies.

Major emphasis was placed on the desirability of holding Government-to-Government discussions with Japan.

Spokesmen for the tuna industry located outside of the Southern California area expressed agreement with certain of the proposals above. They did not support proposals for discussions with Japan with a view to a limitation on certain exports to the United States.

The representatives of the Departments of Interior, Commerce, and State said they would give careful consideration to the plan of action proposed with the understanding that no commitment was made as to the possible attitude of the Government on the plan.

United States Fishing Fleet[1/] Additions

MAY 1959:

A total of 45 vessels of 5 net tons and over were issued first documents as fishing craft during May 1959--35 less than in May of last year. The Pacific area led with 18 vessels, followed by the Gulf with 11 vessels, and the South Atlantic with 8.

During the first five months of 1959, a total of 175 vessels were issued first documents as fishing craft--113 less than during the same period of 1958. Most of the decline occurred in the Gulf area where 66 fewer vessels were documented in 1959 than in 1958.

1/Includes both commercial and sport fishing craft.

Table 1 - U. S. Vessels Issued First Documents as Fishing Craft by Areas, May 1959

Area	May		Jan.-May		Total
	1959	1958	1959	1958	1958
	(Number)				
New England	1	1	7	8	13
Middle Atlantic	-	4	3	7	13
Chesapeake	4	7	34	38	99
South Atlantic	8	14	31	51	135
Gulf	11	27	51	117	270
Pacific	18	17	39	46	112
Great Lakes	-	1	3	3	10
Alaska	3	9	7	17	31
Virgin Islands	-	-	-	1	1
Total	45	80	175	288	684

Note: Vessels assigned to the various sections on the basis of their home ports.

Table 2 - U. S. Vessels Issued First Documents as Fishing Craft by Tonnage, May 1959

Net Tons	Number
5 to 9	18
10 to 19	9
20 to 29	8
30 to 39	4
40 to 49	2
50 to 59	2
130 to 139	1
280 to 289	1
Total	45

* * * * *

JUNE 1959:

During June 1959, a total of 87 vessels of 5 net tons and over were issued first documents as fishing craft. Compared with the same month of last year, this was an increase of 11 vessels. The Gulf led with 25 vessels, while the Pacific area was second with 20 vessels, and the South Atlantic and the Alaskan areas were next with 13 vessels each.

Table 1 - U. S. Vessel Issued First Documents as Fishing Craft by Areas, June 1959

Area	June		Jan.-June		Total
	1959	1958	1959	1958	1958
	(Number)				
New England	1	2	8	10	13
Middle Atlantic	2	-	5	7	13
Chesapeake	11	6	45	44	99
South Atlantic	13	10	44	61	135
Gulf	25	32	76	149	270
Pacific	20	20	59	66	112
Great Lakes	2	-	5	3	10
Alaska	13	6	20	23	31
Virgin Islands	-	-	-	1	1
Total	87	76	262	364	684

Note: Vessels assigned to the various sections on the basis of their home ports.

During the first six months of 1959, a total of 262 vessels were issued first documents as fishing craft--102 below the same period of 1958. Most of the decline occurred in the Gulf area where 73 fewer vessels were documented in 1959 last year.

Table 2 - U. S. Vessels Issued First Documents as Fishing Craft by Tonnage, June 1959

Net Tons	Number
5 to 9	33
10 to 19	20
20 to 29	15
30 to 39	6
40 to 49	7
50 to 59	1
60 to 69	2
140 to 149	1
170 to 179	1
180 to 189	1
Total	87

United States Fishery Experts Visit Soviet Salmon Centers

A group of four United States fishery experts left Washington, D. C., in mid-August on a visit of the salmon centers on Russia's east coast. The group arrived at Vladivostok late in August and they were expected to study the big chum and pink runs of the Amur River which contribute heavily to North Pacific salmon fisheries. In addition, the group hoped to visit the Okhotsk Sea to see the salmon fisheries in that area, and the trip is expected to end in the Kurile Islands.

Since much of the North Pacific salmon research has centered around the problem of identifying United States salmon stocks on the high seas from the comingled Asiatic stocks, it is hoped that the fishery experts will be able to obtain more data which will help the research under way.

The United States fishery experts were: W. C. Arnold of the Alaska Salmon Industry, Inc.; C. Pautzke of the Washington Department of Fisheries, C. Atkinson of the U. S. Bureau of Commercial Fisheries Laboratory at Seattle, and C. Butler from the U. S. Bureau of Commercial Fisheries, Washington, D. C.

U. S. Foreign Trade

EDIBLE FISHERY PRODUCTS, JUNE 1959:

Imports of edible fresh, frozen, and processed fish and shellfish into the United States during June 1959 decreased 3.0 percent in quantity but were up 5.4 percent in value as compared with May 1959. The decrease in quantity was due primarily to lower imports of frozen and canned tuna which more than offset substantially higher imports of frozen fillets of all types, spiny lobsters, and frozen and canned salmon. The increase in value was due to more imports of such high-priced commodities as canned salmon and spiny lobsters and frozen shrimp, salmon, and spiny lobsters.

Compared with June 1958, imports in June this year were down 3.9 percent in quantity but up 5.4 percent in value. Substantially lower imports of groundfish fillets, frozen shrimp, frozen tuna (especially albacore), and canned salmon more than offset increased imports of fillets other than groundfish, canned albacore, canned sardines, canned crabmeat and spiny lobsters, and frozen sea scallops. The increase in value was due to higher imports of high-priced products like canned albacore, crabmeat, and spiny lobsters.

United States Foreign Trade in Edible Fishery Products, June 1959 with Comparisons

Item	Quantity			Value		
	June		Year	June		Year
	1959	1958	1958	1959	1958	1958
	(Millions of Lbs.)			(Millions of $)		
Imports:						
Fish & shellfish: Fresh, frozen, & processed 1/	80.1	83.3	956.8	27.2	25.5	278.4
Exports:						
Fish and shellfish: Processed only 1/ (excluding fresh & frozen)	4.5	1.9	41.2	1.3	0.6	15.6

1/ Includes pastes, sauces, clam chowder and juice, and other specialties.

United States exports of processed (mostly canned fish and exclusive of fresh and frozen) fish and shellfish in June 1959 were lower by 14.7 percent in

quantity, but were 8.3 percent higher in value as compared with May 1959. Compared with the same month in 1958, the exports this June were higher by 132.0 percent in quantity and 116.7 percent in value. The higher exports in June this year were due to increased exports of canned California sardines, canned salmon, and canned squid. These items accounted for about 89 percent of total exports of processed fish and shellfish in June this year.

* * * * *

IMPORTS OF SELECTED FISHERY PRODUCTS, JANUARY-JUNE 1959:

With tuna, shrimp, groundfish and ocean-perch fillets, and fish meal leading the way, United States imports of fishery products showed further increases during the first six months of 1959. The first half year's trend showed gains in canned sardines, canned salmon, canned shrimp, canned squid, and fish oils; declines were noted in canned mackerel, canned anchovies, and miscellaneous fresh or frozen fish.

Groundfish and Ocean-Perch Fillets and Blocks: Imports January-June 1959 were 20 percent higher than in the like period of 1958. Imported in greater quantities were cod fillets, up 46 percent; fillets of haddock, hake, etc., up 18 percent; and ocean-perch fillets, up 30 percent. Canadian shipments of groundfish fillets and blocks to the United States were 24 percent below those of January to June 1958; Icelandic shipments were up 101 percent.

Blocks of Bits and Pieces of Groundfish Fillets: During January-June 1959, imports were only 9 percent of the amount imported during the comparable 1958 period. Imports declared as bits and pieces will probably continue at a low level, compared to the quantity received a year ago when importers used a 1957 court ruling to obtain a lower rate of duty on fish blocks.

Tuna, Fresh or Frozen: Receipts of frozen albacore during the first six months of 1959 were 12 percent higher than during the like 1958 period. Japan was the principal supplier. Other countries, however, sent nearly 2 million pounds during January to June 1959, compared with only 10,000 pounds during January to June 1958.

During the first half of 1959, imports of other frozen tuna, mainly yellowfin, were 79 percent above those of the first half of 1958. Receipts from Japan were up 43 percent. Tuna shipments from Peru during the first half of 1959 were at a record high level.

Tuna, Canned in Brine: Imports during January-June 1959 were 17 percent above those of January to June 1958. Under the 1959 quota, the amount which may be imported at the lower 12-1/2 percent ad valorem rate is 17 percent more than under the 1958 quota.

Shrimp: The upward trend in receipts of shrimp continued during the first half of 1959. Imports were 54 percent higher than for the first half of 1958. Mexico was the leading supplier, sending 59 percent of the total. Panama was second. Shrimp imports from Japan increased by over 3 million pounds; imports from Hong Kong fell off by 1.5 million pounds.

Canned Sardines: During the first six months of 1959, imports of canned sardines in oil were up 22 percent over those of the comparable 1958 period owing mainly to larger shipments of Portuguese sardines. Imports of canned sardines not-in-oil were at a low level as a result of the increase in the supply of California sardines last season.

Canned Salmon: Receipts of canned salmon during the first half of 1959 were down 18 percent from those of the first half of 1958. The increase in shipments from Japan did not offset the large decrease in shipments from Canada.

Fish Meal: January to June imports in 1959 were 81 percent higher than those during the comparable 1958 period. Peru, Canada, and Angola supplied over 87 percent of the imports.

Other Imports: During the first six months of 1959, the following products were received in substantially greater quantities than during the first six months of 1958: canned crabmeat up 57 percent, canned lobster and spiny lobster up 52 percent, oyster (mostly canned) up 39 percent, fresh or frozen sea scallops up 39 percent, and fresh or frozen frog legs up 25 percent.

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EXPORTS OF SELECTED FISHERY PRODUCTS, JANUARY-JUNE 1959:

Canned Sardines, Not-in-Oil: During January-June 1959, exports were nearly five times those of the comparable 1958 period. This is the result of the greater pack of California sardines in 1958 as compared with the low pack in recent previous years.

Canned Salmon: The Philippines took over 2 million pounds of canned salmon in March 1959. Owing to the liberalization of trade, the United Kingdom also took larger quantities during the first six months of 1959. Total exports for that period were five times larger than during the first six months of 1958.

Canned Mackerel and Anchovies: Low supplies resulting from small catches continued to keep exports of these products at a low level, compared with like periods of 1958 and 1957.

Canned Shrimp: During January-June 1959, exports were up 119 percent over those of the comparable 1958 period. Canada continued to be the largest buyer, taking 73 percent.

Canned Squid: Ninety-three percent of these exports were sent to the Philippines and Greece during the first half of 1959. Total exports for that period were 42 percent above those of the first half of 1958.

Fresh-Water Fish, Fresh or Frozen: Exports during the first six months of 1959 were 39 percent below those of the like period of 1958.

Fish Oils: Large purchases during the second quarter of 1959, especially by the Netherlands, were instrumental in raising fish oil exports for January-June 1959 52 percent above those of the same period of 1958.

* * * * *

GROUNDFISH FILLET IMPORTS, JULY 1959:

Imports of groundfish (including ocean perch) fillets and blocks in July 1959 amounted to 20.9 million pounds--a drop of 1.6 million pounds or 7 percent as compared with July 1958. Canada continued to lead all other countries in these imports with 14.8 million pounds--a slight decline of 330,000 pounds as compared with the corresponding month of last year. Iceland was second with 2.7 million pounds--2.4 million pounds below those of July 1958, while Denmark followed with 1.6 million pounds representing a drop of 605,000 pounds. The remaining 1.9 million pounds were imports from Norway,

Miquelon and St. Pierre, West Germany, Greenland, the Netherlands, and the United Kingdom.

During the first seven months of 1959, total imports of groundfish and ocean perch fillets and blocks into the United States amounted to 104.8 million pounds. Compared with the same period of last year, this was a gain of 14.5 million pounds or 16 percent. Canada (48.3 million pounds) accounted for 46 percent of the 1959 seven months total. Imports from Iceland--30.5 million pounds--made up 29 percent of the total, while Denmark was next with 12.0 million pounds or 11 percent.

Note: See Chart 7 in this issue.

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IMPORTS OF CANNED TUNA IN BRINE UNDER QUOTA:

The quantity of tuna canned in brine which may be imported into the United States during the calendar year 1959 at the 12½-percent rate of duty is 52,372,574 pounds. Any imports in excess of the quota will be dutiable at 25 percent ad valorem.

Imports from January 1-August 1, 1959, amounted to 26,535,173 pounds, according to data compiled by the Bureau of Customs. From January 1-August 2, 1958, a total of 26,636,243 pounds had been imported. The quota for 1958 of 44,693,874 pounds was reached on November 20, 1958.

United States Fishery Landings, January-July 1959

Landings of fish and shellfish in the United States during the first seven months of 1959 were 17 percent higher than for the same period of the previous year.

The increased landings were accounted for by a 437-million-pound rise in menhaden landings. Compared with the same period of 1958, the yield of these fish was up 233 million pounds along the Atlantic Coast and 204 million pounds along the Gulf Coast. There were increased landings in New England for Maine herring (up 8 million pounds) and whiting (up 6 million pounds). Ocean perch landings declined 12 million pounds and haddock landings were down 10 million pounds as compared with the first seven months of 1958.

Alaska salmon landings dropped from 239 million pounds through August 16, 1958 to 122 million pounds during the same period of 1959. Herring landings in Alaska increased through August 16 by 10 million pounds. Tuna and jack mackerel landings in California rose nearly 9 million pounds for each species, while Pacific mackerel declined 4 million pounds during the first half of 1959.

Table 1 - United States Fishery Landings of Certain Species for Periods Shown, 1959 and 1958 1/

Species	Period	1959	1958	Total 1958
		.....(1,000 lbs.).....		
Anchovies, Calif. . .	6 mos.	1,800	4,536	8,148
Cod:				
Maine	6 mos.	1,900	1,987	2,735
Boston	7 "	10,900	9,799	16,183
Gloucester	7 "	2,000	1,843	3,189
Total cod		14,800	13,629	22,107
Haddock:				
Maine	6 mos.	1,900	2,407	3,997
Boston.	7 "	46,000	58,101	81,509
Gloucester	7 "	9,700	7,406	9,798
Total haddock. . .		57,600	67,914	95,304
Halibut 2/:				
Wash. and Oreg. . .	7 mos.	14,000	12,142	16,200
Alaska	7 "	18,400	15,421	19,814
Total halibut . . .		32,400	27,563	36,014
Herring:				
Maine	6 mos.	31,500	23,926	170,977
Alaska.	to Aug. 16	93,300	83,578	88,801
Industrial Fish, Maine & Mass. 3/ .	7 mos.	56,700	65,487	108,869
Mackerel, Calif.:				
Jack	6 mos.	15,300	6,524	21,698
Pacific	6 "	6,100	10,578	24,624
Menhaden.	7 "	1,135,327	698,754	1,544,700
Ocean perch:				
Maine	6 mos.	35,700	36,694	71,068
Boston.	7 "	1,800	1,404	2,625
Gloucester	7 "	33,600	44,619	74,951
Total ocean perch		71,100	82,717	148,644
Salmon:				
Wash. 4/	6 mos.	2,500	3,234	53,000
Oreg. 4/	5 "	1,000	1,651	8,157
Alaska	to Aug. 16	122,200	239,143	241,255
Scallops, sea, New Bedford (meats) . .	7 mos.	10,200	8,878	15,253
Shrimp (heads-on):				
South Atl. & Gulf . .	7 "	85,100	83,656	195,808
Washington	6 "	1,400	4,813	6,729
Oregon	5 "	1,500	621	1,550
Alaska	6 "	6,600	3,518	7,862
Squid, Calif.	6 "	14,900	3,050	4,864
Tuna, Calif.	6 "	137,700	128,840	307,378
Whiting:				
Maine	6 mos.	6,800	8,048	23,577
Boston.	7 "	400	208	596
Gloucester	7 "	33,300	26,661	58,927
Total whiting . . .		40,500	34,917	83,100
Total of all above items		1,939,527	1,597,527	3,194,842
Others (not listed)		307,926	320,748	1,521,158
Grand total		2,247,453	1,918,275	4,716,000

1/Preliminary. 3/Excluding menhaden
2/Dressed weight 4/Landed weight.

Table 2 - United States Fishery Landings by States for Periods Shown, 1959 and 1958 1/

Area	Period	1959	1958	Total 1958
		(1,000 lbs.)		
Maine	6 mos.	92,800	89,201	316,955
Massachusetts 2/:				
Boston	7 mos.	69,200	81,709	123,764
Gloucester	7 "	122,700	113,737	230,218
New Bedford	7 "	65,800	69,359	111,669
Provincetown	7 "	12,700	10,055	25,754
Total Mass.		270,400	274,860	491,405
Rhode Island 3/	6 mos.	63,400	53,434	103,452
New York 3/	6 "	20,100	21,441	42,063
New Jersey 3/	6 "	28,300	24,700	50,933
North Carolina 3/	6 "	32,000	32,142	54,866
South Carolina 3/	6 "	4,100	4,701	15,359
Georgia	6 "	6,600	5,815	20,066
Florida 3/	6 "	66,100	74,561	153,832
Alabama	4 "	2,400	2,035	10,343
Mississippi 3/	5 "	3,200	3,813	84,988
Louisiana 3/	2 "	5,900	7,453	90,330
Texas 3/	6 "	13,900	19,364	66,112
Ohio (Mar.-June)	6 "	12,200	12,029	19,145
Oregon 2/	5 "	14,800	18,003	57,800
Washington 2/	6 "	56,200	61,455	166,000
California:				
Certain species 4/	6 mos.	175,800	153,528	373,770
Other	3 "	21,500	22,339	290,138
Total Calif.		197,300	175,867	663,908
Rhode Island, Middle Atlantic, Chesapeake, South Atlantic, and Gulf States (menhaden only)	7 mos.	1,117,253	695,741	1,540,867
Alaska:				
Halibut 5/	7 mos.	18,400	15,421	19,814
Herring	to Aug. 16	93,300	83,578	88,801
Salmon	to Aug. 16	122,200	239,143	241,255
Shrimp	6 mos.	6,600	3,518	7,862
Total of all above items		2,247,453	1,918,275	4,306,156
Others (not listed)		6/	6/	409,844
Grand total		6/	6/	4,716,000

1/Preliminary.
2/Landed weight.
3/Excluding menhaden.
4/Includes catch of anchovies, jack and Pacific mackerel, squid, and tuna.
5/Dressed weight.
6/Data not available.

Note: --Data principally represent weight of fish and shellfish as landed except for mollusks which represent the weight of meats only.

Wholesale Market

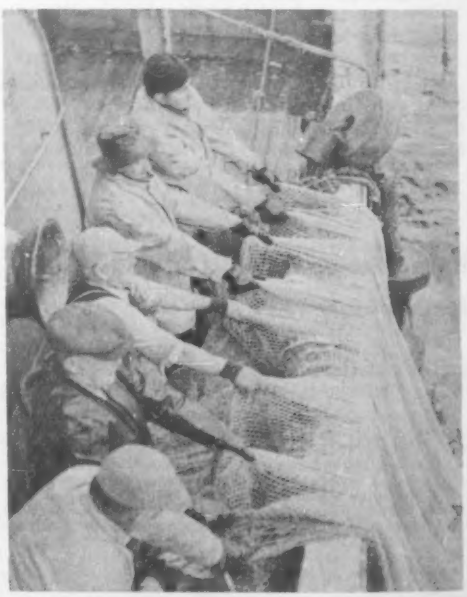
PHILADELPHIA FISH WHOLESALERS MOVE FROM DOCK STREET TO NEW FOOD DISTRIBUTION CENTER:

Dedication ceremonies for the Produce and Seafood Markets of the Philadelphia Food Distribution Center were held in mid-June this year. Many of the wholesale firms located in the old Dock Street Market moved to the seafood section of the new Food Distribution Center.

Wholesales Prices, August 1959

With an improvement in the landings of fish in New England and Northwest areas, and increased supplies of shrimp, August wholesale prices of edible fishery products (fresh, frozen, and canned) were down 2.6 percent from July and were substantially lower (7.8 percent) than a year ago, as measured by the wholesale price index.

Increased landings in the New England area, especially of haddock, were responsible for the drop of 5.0 percent in the price index for drawn, dressed, and whole finfish from July to August. The substantial drop of 35.6 percent in the ex-vessel price of drawn fresh haddock at Boston from July to August was offset to a considerable extent by higher wholesale prices for Western halibut and salmon at New York City, and generally higher prices for fresh-water fish at New York City and Chicago. Landings in the Great Lakes area in August were light which accounts for the higher prices for fresh-water fish. Compared with August 1958, the drawn, dressed, and whole



Hauling trawl aboard large otter trawler.

finfish subgroup index this August was only slightly lower. Price drops for drawn fresh haddock, dressed halibut, dressed salmon, and whitefish at New York City were almost offset by price increases for other fresh-water fish.

Most fresh processed fish and shellfish prices in August were lower than the previous month. Fresh haddock fillets were down 9.7 percent and large shrimp down 3.1 percent. The exception was shucked oysters which rose 2.1 percent in anticipation of the opening of the main marketing season on September 1. The fresh processed fish and shellfish subgroup index this August was 14.7 percent lower than in the same month of 1958 because of lower prices for haddock fillets (down 3.9 percent) and fresh shrimp at New York City (down 29.7 percent). An increase in the landings of shrimp in the South Atlantic and Gulf States and heavier imports were responsible for the drop in shrimp prices.

With supplies generally heavier than they were a year ago and the usual seasonal drop in demand during hot weather, prices for nearly all frozen fillets and shrimp were 7.1 percent lower this August than the previous month and 15.9 percent below August 1958. From July to August this year, prices dropped for flounder fillets by 3.8 percent, for haddock fillets by 3 percent, for ocean perch by 3.5 percent, and for frozen shrimp at Chicago by 10.1 percent. Compared with August 1958, prices this August were down 7.4 percent for flounder fillets, 7.2 percent for haddock fillets, and 5.2 percent for ocean perch fillets, and 22.4 percent for large shrimp.

Since the salmon and Maine sardine packs this year are smaller than a year earlier, canned fishery products prices were up 1.5 percent from July to August. Even California sardines, which were plentiful a year ago, rose 3.5 percent this August because fishing did not commence on August 1 when the season opened in Central California since no agreement had been reached on the ex-vessel price. But compared with August 1958, prices this August for most canned fishery products were still 3.5 percent lower, except for canned salmon and Maine sardines which were priced somewhat higher.

Table 1 - Wholesale Average Prices and Indexes for Edible Fish and Shellfish, August 1959 With Comparisons

Group, Subgroup, and Item Specification	Point of Pricing	Unit	Avg. Prices 1/ ($)		Indexes (1947-49=100)			
			Aug. 1959	July 1959	Aug. 1959	July 1959	June 1959	Aug. 1958
ALL FISH & SHELLFISH (Fresh, Frozen, & Canned)					119.8	123.0	123.5	129.9
Fresh & Frozen Fishery Products:					132.8	139.0	139.9	147.2
Drawn, Dressed, or Whole Finfish:					152.2	160.2	147.9	152.7
Haddock, lge., offshore, drawn, fresh	Boston	lb.	.11	.17	109.1	169.5	109.1	113.7
Halibut, West., 20/80 lbs., drsd., fresh or froz.	New York	lb.	.35	.34	107.8	103.6	105.2	114.5
Salmon, king, lge. & med., drsd., fresh or froz.	New York	lb.	.80	.76	179.7	171.3	175.8	178.7
Whitefish, L. Superior, drawn, fresh	Chicago	lb.	.64	.61	158.6	151.2	140.1	132.6
Whitefish, L. Erie pound or gill net, rnd., fresh	New York	lb.	.80	.79	161.8	159.8	177.0	177.0
Yellow pike, L. Michigan & Huron, rnd., fresh	New York	lb.	.83	.81	193.5	190.0	158.3	179.4
Processed, Fresh (Fish & Shellfish):					121.5	123.0	136.7	142.4
Fillets, haddock, sml., skins on, 20-lb. tins	Boston	lb.	.37	.41	125.9	139.5	129.3	131.0
Shrimp, lge. (26-30 count), headless, fresh	New York	lb.	.64	.66	101.1	104.3	133.5	143.8
Oysters, shucked, standards	Norfolk	gal.	6.00	5.88	148.5	145.4	142.3	142.3
Processed, Frozen (Fish & Shellfish):					112.3	120.9	122.4	133.6
Fillets: Flounder, skinless, 1-lb. pkg.	Boston	lb.	.38	.39	98.2	102.1	102.1	106.0
Haddock, sml., skins on, 1-lb. pkg.	Boston	lb.	.33	.34	102.0	105.2	105.2	109.9
Ocean perch, skins on, 1-lb. pkg.	Boston	lb.	.27	.28	108.8	112.8	112.8	114.8
Shrimp, lge. (26-30 count), 5-lb. pkg.	Chicago	lb.	.69	.77	106.5	118.4	121.1	137.3
Canned Fishery Products:					102.0	100.5	100.4	105.7
Salmon, pink, No. 1 tall (16 oz.), 48 cans/cs.	Seattle	cs.	23.75	23.50	123.9	122.6	122.6	120.0
Tuna, lt. meat, chunk, No. 1/2 tuna (6-1/2 oz.), 48 cans/cs.	Los Angeles	cs.	10.80	10.80	77.9	77.9	77.9	86.2
Sardines, Calif., tom. pack, No. 1 oval (15 oz.), 48 cans/cs.	Los Angeles	cs.	7.50	7.25	88.1	85.1	83.9	132.4
Sardines, Maine, keyless oil, No. 1/4 drawn (3-3/4 oz.), 100 cans/cs.	New York	cs.	8.75	8.25	93.1	87.8	87.5	82.2

1/ Represent average prices for one day (Monday or Tuesday) during the week in which the 15th of the month occurs. These prices are published as indicators of movement and not necessarily absolute level. Daily Market News Service "Fishery Products Reports" should be referred to for actual prices.

FOREIGN

International

NORTHWEST ATLANTIC FISHERIES COMMISSION

SUOMELA ELECTED CHAIRMAN OF COMMISSION:

Arnie J. Suomela, Commissioner of the United States Fish and Wildlife Service, has been elected Chairman of the

Arnie J. Suomela

International Commission for Northwest Atlantic Fisheries, the Department of the Interior announced on June 17, 1959.

Suomela was chosen for the position at the annual meeting of the Commission held early in June in Montreal, Canada. He took office upon election. His tenure is for two years. Suomela succeeds K. Sunnana of Norway. Captain T. de Almeida of Portugal preceded Sunnana as Chairman of the Commission.

The International Commission for Northwest Atlantic Fisheries was established in 1951. It is made up of members of 12 nations whose fishermen operate off New England, Nova Scotia, Newfoundland, Labrador, and Greenland. It is primarily concerned with the groundfish (cod, haddock, hake, halibut, flounders, whiting, and ocean perch).

The technical work of the committee is done by the fishery biological research units of the member nations. Recommendations for conservation measures, such as mesh-size limitations, when adopted by the Commission are passed on to the member nations. It is the responsibility of each member nation to effect the necessary measures for the guidance of its own fishermen.

The original ten members of the Commission are: Canada, Denmark, France, Iceland, Italy, Norway, Portugal, Spain, the United Kingdom, and the United States. West Germany and Russia have since become members.

INTERNATIONAL PACIFIC SALMON FISHERIES COMMISSION

FRASER RIVER SOCKEYE SALMON FISHERY TRENDS:

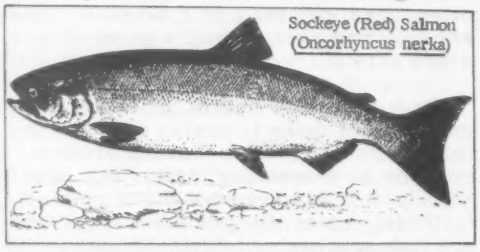
July 27, 1959: United States fishermen failed to harvest their allowable share of the joint Canadian and United States Fraser sockeye catch for the week ending July 25 because of two factors. The fleet size dropped drastically over that in operation for a similar period in the brood year (1955) and gill-net efficiency dropped about 50 percent due to the small size of the fish. In 1955, 150 seines, 60 reef nets, and 400 effective gill nets were operating for the period July 18-21. This year the fleet has dropped to 90 seines, 40 reef nets, and only 175 ineffective gill nets. The United

International (Contd.):

States share of the week's catch dropped accordingly from 56 percent in 1955 to 37 percent in 1959 for an estimated total of about 30 percent of the fish available. The original regulations were designed to allow a 40 percent catch of the fish available.

To offset the effect of low fishing efficiency in United States waters, the International Pacific Salmon Fisheries Commission decided on July 27 to increase the United States fishing time for the week commencing July 26 by 24 hours for all gear.

August 11, 1959: Fraser River sockeye runs were fulfilling the most optimistic preseason estimates for a good



sea survival. Normally the runs on this cycle year have always been poor even before the Hell's Gate slide.

The Chairman of the Commission stated that catches were excellent in all Convention waters with the Canadian fleet harvesting an estimated 200,000 sockeye on August 10. The United States fleet also harvested about 90,000 sockeye on that date for a total catch of 880,000 fish. Due to the large escapements of sockeye to the spawning grounds, up to August 11, the Commission permitted an extra full day's fishing in all Canadian and United States Convention waters for the week beginning August 10.

The Commission took cognizance of the poor showing of pink salmon up to August 11. To protect against overfishing of that species, expected to appear in the fishery commencing August 16, the Commission approved a reduction of fishing time of 48 hours subject to reconsideration on the morning of August 18, effective in all United States waters and those Canadian waters lying westerly of William Head. Regulations permitting three-day fishing in Areas 17 and 18 and District I of Canadian Convention waters were not changed.

FOOD AND AGRICULTURE ORGANIZATION

ARTIFICIAL DRYING OF FISH IN AFRICA INTRODUCED BY EXPERT:

Ways and means of improving the fish-drying processes generally practiced in Africa and in other tropical regions has been under study by the Fish Processing Section, Fisheries Division, Food and Agriculture Organization (FAO) for some time. Sun-drying of fish is the traditional African method, but it is a process which is largely dependent on the vagaries of weather and is particularly unsatisfactory during the rainy season. The Chief of the Fish Processing Section decided that it would be possible to dry fish by artificial methods provided a simple, economical plant could be devised for this purpose.

He stated, "I concluded that the essential equipment would consist of a motor and fan and a drying tunnel. FAO arranged for me to visit several countries in Africa, taking with me a gasoline engine and a fan. In advance, I asked the Governments for their help in constructing a simple drying tunnel and sent them the necessary sketches for this purpose."

After visiting the Sudan, the FAO expert went to Uganda where he was able to carry out his experiments in a fish-processing factory on the shores of Lake Edward. Here a new tunnel was built by regional officials and an oven was also constructed.

"This was made out of an old metal container which we used as a sort of brazier," he said. "The experiment was very successful: we dried the fish very effectively in 24 and 36 hours as against the 10 to 14 days taken by sun drying during the rainy season. Unfortunately, however, the dried fish came out brown, because of smoke from the fire. I was

International (Contd.):

informed that fish in this condition would be unmarketable, so I decided to experiment again, this time with a new brazier placed lengthwise at the entrance to the tunnel and with a pipe running the length of the tunnel to carry off the smoke and fumes. I was also fortunate enough to get an electric motor from the factory to replace my gasoline motor.

"This meant that the motor could work continuously for the 36 hours required without being refuelled. However, it was still necessary to keep the oven fire alight for that time and a night watchman was put on duty to ensure that this was done."

The result of the new experiment was a batch of prime-quality artificially-dried fish which immediately won the approval of the Uganda fish merchants. Indeed, the fish industry and trade expressed the opinion that this product was superior to most of the traditional sun-dried fish and would not only bring a better price, but would lead to a considerable expansion in the trade.

One important development from the experiment is that the Uganda Government has decided to provide funds to buy the necessary equipment and machinery for artificial drying and establish the process in the lake fisheries.

As most of the salted-dried fish produced in Sudan and Uganda is exported to the Belgian Congo, the FAO expert had included in his itinerary a visit to that territory.

While in Stanleyville, he observed that the retail fish trade was mostly in the hands of women.

"These ladies, usually carrying the babies on their backs, came to the wholesale merchant's shop to buy the fish as it arrived by lorry," he explained. "They were, indeed, very shrewd business women and hard bargainers. The purchase of baskets of smoked fish sometimes needed a whole day."

Apart from the success of his mission in proving that a simple method of artificial drying of fish could be successfully used in the tropics--an introduction which may bring about an evolution in fish processing in these countries--the FAO expert said that his experience on the trip had shown that there were many physical and psychological factors which limited the introduction of modern fish processing methods in some regions.

Tradition, religion, and taboos often have a strong influence on what may or may not be eaten by a tribe.

"Taboos and eating habits vary from tribe to tribe in Central Africa," the expert pointed out. "For instance, some tribes refuse to eat certain species of fish because they believe the fish cause women to be barren. Others believe that if certain species of fish are eaten, the consumers will get a skin disease. These are only two examples of a great many which exist."

Such consumer habits, beliefs and preferences make it unwise to try to introduce rapidly new foodstuffs or new methods of processing them. The first need is to try to improve the traditional methods. Later, by gradual means, modern fish processing technology can be introduced which can lead to hygienic handling of the fish. But it would be a mistake to think that modern methods and modern plants and equipment can be successfully introduced at once everywhere.

INTERNATIONAL CONFERENCE OF FISH MEAL MANUFACTURERS

An International Conference of Fish Meal Manufacturers was scheduled to take place in Madrid, Spain, October 20-22, 1959. The agenda for the meeting includes general, commercial, and technical subjects on fishery products--fish meal, oil, and solubles. Countries represented included Angola, Denmark, France, Great Britain, Germany, Netherlands, Norway, Portugal, South Africa, Spain, and the United States.

EUROPEAN FREE TRADE ASSOCIATION RECOMMENDED

Ministers from Austria, Denmark, Norway, Portugal, Sweden, Switzerland, and the United Kingdom met at Stockholm

International (Contd.):

on July 20-21, 1959, to study a draft plan for a European Free Trade Association, generally called the "Outer Seven."

The official communique issued from this meeting announced that:

The Ministers would recommend to their Governments that a European Free Trade Association among the seven countries should be established. The object of this association would be to strengthen the economies of its members by promoting expansion of economic activity, full employment, a rising standard of living, and financial stability.

They affirmed that another purpose in establishing the association would be to facilitate negotiations with the European Economic Community (the Common Market) and the other members of the Organization of European Economic Cooperation (OEEC).

A draft plan for a European Free Trade Association was approved. The plan is to be published and officials are to be appointed to negotiate an agreement using the draft plan as a basis. The text of this agreement is to be presented to the Ministers by October 31, 1959.

Senior officials engaged in negotiating the agreement were designated as an official committee to advise governments on questions arising out of the establishment of the Free Trade Association.

The draft plan contains the following main points, according to a Swedish Embassy release:

Internal import duties on industrial commodities are to be gradually abolished between July 1, 1960, and January 1, 1970, according to a fixed time schedule. On July 1, 1960--the same date as the second reduction of import duties within the Common Market--the members of the Free Trade Association would reduce internal import duties by 20 percent. Thereafter at intervals of 18 months--12 months from 1965 and onward--internal tariffs would be reduced by 10 percent each time so as to be entirely abolished by the end of 1969. This draft plan proposes to follow about the same tariff reduction schedule as the Common Market.

Quantitative restrictions on imports from other "Outer Seven" members also would be gradually abolished during the transitional period.

Each member would control its own external tariffs and complaint procedures would be provided to take care of harmful deflections of trade arising out of differences in external tariffs.

To be entitled to the tariff reductions a product would have to originate within the Free Trade Association or, in general, have at least 50 percent of the same value added in the area.

Serious difficulties arising in special sectors of industry or in special geographic areas would be covered by escape-clause provisions.

Rules governing restrictive trade practices also would be included. Agricultural products are to be governed by a special agreement, according to a decision of the Ministers. This agreement would set out agreed objectives of agricultural and food policy, and would be designed to facilitate expansion of trade between members. Fish and other marine products would be treated separately as an independent problem.

The Foreign Minister of Denmark, during the Ministers' meeting, made a statement on behalf of the Danish, Norwegian, and Swedish delegations with reference to the negotiations for a common Nordic Market. The statement dealt with the progress made toward the adoption of a draft plan for a Nordic Market and the decision at the Nordic Prime Ministers' meeting held July 11-12 to adapt the plans for Nordic economic cooperation to the proposed European Free Trade Association.

After the meeting in Kungalv, Sweden, of Ministerial delegations, headed by the Prime Ministers of Denmark, Norway, Sweden, and Finland, a communique was issued stating that consideration had

International (Contd.):

been given to final Committee reports proposing a Nordic customs union, expanded cooperation in commercial policy, production, investment, exploitation of power resources, problems of finance and currency, research, and education. In addition to the agreement among the delegations for the need to adapt the Nordic Market to the Free Trade Association, the other significant decision was to present to the respective Cabinets of the countries a plan to establish a permanent Nordic Council of Ministers. (Foreign Commerce Weekly, July 3, 1959.)

Note: Also see Commercial Fisheries Review, May 1959 p. 42, February 1959 p. 40, January 1959 p. 13.

Australia

MARINE-OIL PRODUCTION, FOREIGN TRADE, AND DISTRIBUTION, 1956/57-1958/59:

Marine-oil production in Australia is confined almost entirely to oil from whaling by five land stations (including the one on Norfolk Island).

Whale-oil Production: The Australian 1956 whaling season, which commenced on May 25 and closed on October 21, was not as successful as those of recent years. Unfavorable weather conditions prevented the two west coast stations from obtaining their full quota, and as a result production of oil showed a substantial decline from the previous year. The total number of whales taken in 1958 was 1,812, of which 120 humpback whales were caught by the Norfolk Island station. Production of oil in 1958 amounted to 3,901,350 Imperial gallons as compared to 4,118,640 gallons during the 1957 season. The three stations also produced 8,859 long tons of whale meal, dried solubles, and meat for pet food.

The oil yield per whale for the 1958 season was the highest on record, with average recovery per whale at 53.80 barrels (40 Imperial gallons each). On the east coast the average was even higher, and was estimated at about 60 barrels per whale. A slight increase in the average size of whales taken and installation of efficient recovery equipment is mainly responsible for the increase in yield. Accordingly, the lower production in 1958 was solely due to the reduced numbers of whales taken on the west coast. On the other hand, output of whale meal and dried solubles in 1958 increased 645 tons as compared with 1957 as a result of improved recovery techniques and possibly the processing of an increased number of sperm whales.

Table 1 - Australian Supply and Distribution of Whale Oil, Fiscal Years 1956/57, 1957/58, and 1958/59

Supply	1958/59 1/	1957/58 2/	1956/57
	(Imperial Gallons)		
Opening stocks January 1 2/	430,799	904,176	765,141
Production 3/	3,901,360	4,118,640	4,945,881
Imports	80,000	79,693	86,020
Total supply	4,412,159	5,102,509	4,945,881
Exports	3,300,000	4,021,710	3,428,066
Local consumption 2/	650,000	650,000	613,639
Closing stocks, December 31 2/	462,159	430,799	904,176

1/ Forecast.
2/ Estimated.
3/ Includes Norfolk Island production.
Source: Production from Bureau of Fisheries, foreign trade data from Bureau of Census and Statistics.

Table 2 - Australian Foreign Trade in Fish and Marine-Animal Oils (Excluding Whale Oil), 1956/57-1957/58

Products	Imports		Exports	
	1957/58	1956/57	1957/58	1956/57
	(Imperial Gallons)			
Cod-liver oils (incl. refined)	38,390	72,394	1/	1/
Fish oils, unrefined, incl. penguin & seal oil	96,577	97,668		
Other marine-animal oils	17,352	24,483		
Total	152,319	194,545	3,343	3,270

1/ Breakdown not available.

Consumption of whale oil in Australia increased sharply during 1956/57 as a result of the installation of processing equipment by the oleomargarine industry following an increase in manufacturing quotas. Consumption of whale oil by that industry jumped from about 250,000 gallons in 1955/56 to 613,639 gallons in 1956/57, and is estimated to have risen to 650,000 gallons in 1957/58 and 1958/59. Whale oil exports during 1958/59 are expected to be substantially smaller than a year earlier. Whale oil from the 1956 Norfolk Island station catch had to be stored there for some time, occasioning a significant build-up in Australian stocks. The oil was shipped to the mainland during the following year, and helped to

Australia (Contd.):

raise exports in 1957/58 to record proportions. In 1958/59, however, stocks are back to normal and whale-oil exports are limited to the quantity in excess of local requirements, or about 3.3 million gallons.

Imports of whale oil for the fiscal years 1956/57 and 1957/58 averaged 82,856 gallons (about 90-95 percent from New Zealand).

Prices: Prices realized on the United Kingdom market for Australian whale oil were lower in 1959 than for 1958, and have fluctuated between £70 and £72 (US$196.70-202.32) c.i.f. per long ton United Kingdom ports.

Table 3 - Australian Imports and Exports of Whale Oil, Fiscal Years 1956/57 and 1957/58

	1957/58	1956/57
Imports: 1/	...(Imperial Gallons)...	
(Country of Origin)		
United Kingdom	5,273	-
New Zealand	74,381	77,774
Other British countries	-	8,246
German Federal Republic	39	-
Total imports	79,693	86,020
Exports:		
(Country of Destination)		
United Kingdom	2,209,446	1,497,062
German Federal Republic	211,347	770,919
Italy	569,902	490,994
Sweden	769,790	-
Netherlands	-	669,091
Other	261,225	-
Total exports	4,021,710	3,428,066

1/ Shipments from Norfolk Island not considered as imports.

Whale meal and solubles are under export control and are subject to approval by the Department of Primary Industry. It appears, however, that for the 1958/59 season export permits have been granted for about 2,000 long tons of solubles. During the 1957/58 season exports of all meat meals (including whale meal) totaled only 407 long tons, and the easing of export restrictions seems to indicate that the shortage of high protein feed is not as serious now as it has been for some years.

Canada

CONTROLS ON NEWFOUNDLAND'S EXPORTS OF SALTED FISH TERMINATED:

The Canadian Parliament, shortly before the end of its 1959 session, repealed all acts relating to the control of the export of salted fish from Newfoundland as of July 31, 1959. Exclusive rights to export salted fish (cod, haddock, hake, ling, pollock, and cusk) from Newfoundland has in the past been the privilege of Newfoundland Associated Fish Exporters Limited. Under the terms of the new act no export permits will be required to export salted fish and therefore the exclusive rights of the Newfoundland Associated Fish Exporters Limited have been terminated. Notification was given in 1958 that such exclusive rights would be terminated and the legislation was necessary to implement the decision.

The system of having exports under the control of a single corporate body was introduced many years ago in an effort to regularize marketing conditions and prevent uneconomic competition. The terms of Union of Newfoundland and Canada provided for the continuation of such exclusive export rights for five years from the date of Union and thereafter until Parliament decreed otherwise. It was decided last year that exports could not be controlled from one province while remaining uncontrolled elsewhere and notice was given for termination of the provision in 12 months.

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INCENTIVE PAYMENTS FOR BRITISH COLUMBIA DOGFISH:

The Canadian Government is again providing a financial incentive this year in an effort to control the stocks of dogfish in British Columbia waters. This was announced on July 24, 1959, by the Canadian Minister of Fisheries. He said that C$250,000 has been earmarked to cover special payments to fishermen at the rate of 10 cents a pound for dogfish livers delivered to liver-oil plants and collecting stations in British Columbia. The program is now in effect and will continue to the limit of the funds, which will be available until March 31, 1960.

Canada (Contd.):

"This year's dogfish program is a follow-up to that launched by the Federal Government on January 12 this year which terminated March 31," a statement from the Minister pointed out. "The initial effort was largely experimental to determine the most effective methods of dealing with the dogfish problem," he said.

Chile

PRODUCTION OF OIL AND MEAL BY WHALING INDUSTRY, 1956-1958:

Production of marine oils and meal in Chile is largely by the whaling industry. the latest official figures on the catch by the whaling fleet are for 1957 when 1,510 whales were taken. This is lower by 104 whales than the 1956 catch of 1,614 whales. It was estimated the catch of whales in 1958 totaled 1,636 in number, according to trade estimates. However, the yield of oil and other whale byproducts was higher in 1957 than in 1956. Production of oil from baleen whales and sperm whales during the 1956 to 1958 period showed a steady increase from 7,027 tons in 1956 to 7,500 tons in 1957 and may have reached 7,800 tons in 1958.

Table 1 - Chilean Catch of Whales, 1956-1958

Species	1958 1/	1957	1956
	(Number)		
Blue whales	220	190	207
Finbacks	210	200	203
Humpbacks	-	10	3
Sperm whales	1,206	990	1,154
All others	-	120	47
Total	1,636	1,510	1,614

1/ Estimated.

Table 2 - Chilean Production of Oil, Meal, and Meat from Whales, 1956-1958

Product	1958 1/	1957	1956
	(Metric Tons)		
Sperm oil	4,200	4,020	4,273
Whale oil	3,600	3,480	2,754
Total oil	7,800	7,500	7,027
Meat	230	220	218
Whale meal	1,200	1,050	1,180
Bone oil 1/2/	520	4,800	500

1/ Estimated.
2/ Mainly from whales, but may include bone oil from other animals.

Imports of whale or other marine oils into Chile are negligible. Most of the whale oil, sperm oil, and other whale byproducts produced are utilized in Chile. Most of the whale oil is used in oleomargarine production. In 1957 exports of whale and sperm oil amounted to 889 metric tons and for 1958 and 1959 exports were estimated to be about 100 tons. (United States Foreign Agriculture Service Report from Santiago, April 28, 1959.)

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TUNA LANDINGS, PACK, AND EXPORTS, 1957-58:

Tuna landings in Chile during 1958 amounted to 172 metric tons as compared to 487 tons in 1957. No records are kept of landings by species, but yellowfin, bluefin, and albacore tuna are found off the Chilean coast between Arica and San Antonio. It was estimated that during 1957 and 1958, 10 percent of all landings were albacore, 20 percent bluefin, and the balance yellowfin.

Chilean Exports of Tuna, 1957-58 1/

Country	1958 Jan.-June only 2/		1957	
	Quantity	Value	Quantity	Value
	Metric Tons	US$	Metric Tons	US$
United States	24	4,573	343.0	73,768
Bolivia	-	-	0.4	150
Italy	-	-	3.0	2,289

1/ It is estimated that nearly 95 percent of all exports were frozen tuna, and the remaining canned fish. Fresh tuna is not exported.
2/ Data on second half of year not available.

Fig. 1 - Typical Chilean fishermen from Quintay fishing for tuna.

The canned tuna pack for use in Chile in 1958 was only 3 tons as compared to

Chile (Contd.):

28 tons in 1957. No canned tuna was produced for export in 1958, and only 8.5 tons were produced in 1957--3 tons for

Fig. 2 - Chilean fishermen bringing their catch ashore from small boats.

Bolivia, 5 tons for the United States, and 0.5 tons for Italy. (United States Embassy dispatch from Santiago, July 7, 1959.)

Ecuador

GRANT BY UNITED NATIONS FOR FISHERIES DEVELOPMENT UNDER STUDY BY FAO:

A five-man special mission of the Food and Agriculture Organization (FAO) arrived in Quito July 18, 1959, to make preliminary studies of the fishing industry, preparatory to a 1960 grant of US$500,000 from the United States Special Fund. Ecuador will furnish another $200,000, the total to be spent over a three-year period to study fish resources, establish an information center for fishermen, advise the fishing companies on modernization of methods, and help expand markets.

France

IMPORT RESTRICTIONS REMOVED ON SALMON AND LOBSTER:

The French Government on July 23 published a consolidation of all commodities which have been freed from import restrictions since the beginning of 1959, and canned and frozen salmon and canned lobster are included. Approximately 650 items have been recently liberalized as a result of this step which raises the total number of freed commodities to about 1,500. All but some 200 of the liberalized commodities may be imported from the United States and Canada.

* * * * *

INCREASE IN CANNED TUNA CONSUMPTION SOUGHT:

A large publicity campaign for increasing canned tuna consumption will soon be launched in France under the auspices of the Chambre Syndicale of France's tuna canners.

The consumer will be approached directly by use of a mobile kitchen which will demonstrate on all the main streets of principal cities. The mobile kitchen will show the uses of canned tuna for family cooking and provide first-hand ideas on tuna cookery to homemakers. The kitchen will also distribute samples of the various tuna dishes prepared.

The efforts of the mobile kitchen will be supported by newspaper ads and radio announcements. It is hoped that the result will be increased consumption which will relieve the present crisis that exists in the French canned tuna market.

This publicity campaign is the first step towards real action and the abandonment of the use of advertising slogans which were useful at first but later failed to do a selling job because they were no longer new enough to attract attention. (France Peche, no. 31, July-August 1959.)

Ghana

IMPORT CONTROLS ON CANNED SALMON LIBERALIZED:

Among the commodities from the so-called "dollar area" included in a list of imported items that no longer require an import license for entry into Ghana are fresh, chilled, frozen, and canned salmon and salmon trout. But canned salmon is the only product in the category of any importance. Under Notice to Importers No. 135 effective July 3, 1959, canned salmon can now be imported into Ghana under "open general license," i.e., without a specific import license or without any dollar quota being assigned to the importing firm.

Canned salmon is a luxury item in Ghana and is sold only to the wealthy in the major cities. Now that imports of canned salmon can be imported without a license, it is doubtful that canned salmon will find a major market in Ghana because of its high price as compared with cheaper canned fish. However, the removal of import controls on canned salmon may create some interest on the part of Ghana importers. (United States Embassy in Accra, July 13, 1959.)

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U. S. DOLLAR AID FOR GHANA FISHERIES DEVELOPMENT:

The West African nation of Ghana (formerly the Gold Coast) has announced its plans for development of its fisheries. They involve plans for the establishment of two fishing ports with freezing plants and refrigerated storage. To finance these projects, it is reported that US$2.5 million will shortly be loaned through the International Cooperation Administration and the Development Loan Fund. It is expected that realization of these plans will provide the only large-scale fishing base in West Africa. (Suisan Keizai Shimbun, Japanese periodical, July 8, 1959.)

Greece

MARKET FOR CANNED SARDINES OR PILCHARDS:

There is no production of canned pilchards as distinguished from true sardines in Greece. The sardines which are caught in Greek waters are small and thin, and though efforts have been made to can Greek sardines in olive oil, the results achieved were unsatisfactory. Greek production of canned sardines amounts to about 20 metric tons annually and is chiefly consumed by the Greek armed forces. Greek requirements of canned sardines or pilchards are met almost exclusively through imports.

Imports: Canned fish may be freely imported into Greece. Greek import statistics do not show canned pilchards separately; they come under the general classification "canned sardines," which also includes brisling and herring (Clupea spratus and Clupea harengus) and other sardine-like fish.

Table 1 - Greek Imports of Canned Sardines[1/], 1958

Country of Origin	Quantity	Value[2/]	
	Metric Tons	1,000 Drachmas	US$ 1,000[3/]
Portugal	607	9,900	330
Netherlands	252	2,290	76
Japan	128	1,406	47
West Germany	73	1,010	34
Benelux	61	778	26
United States	49	455	15
Yugoslavia	10	143	5
Other countries	4	66	2
Total	1,184	16,048	535

1/Greek import statistics do not differentiate between "sardines" and "pilchards."
2/Values are c.i.f. Greek port.
3/Values converted at rate of 30 drachmas equal US$1.

From 1954 through 1958, imports of sardines or pilchards from the United States by Greece varied from 49 to 130 tons. Imports from the United States made up about 6.6 percent of the quantity and about 4.7 percent of the average value for the 1954-58 period.

Table 2 - Greek Total Imports of Sardines and Imports from the United States, 1954-58

Year	Total Imports		From United States	
	Metric Tons	US$ 1,000	Metric Tons	US$ 1,000
1958	1,184	535	49	15
1957	1,006	476	105	32
1956	1,491	714	59	17
1955	1,045	446	130	46
1954	1,296	493	52	15

In the total quantity of canned sardines imported into Greece, only small amounts of pilchards of California-type sardines are included. Imports of pilchards originate almost exclusively from the United States and Japan. Portugal and Yugoslavia supply the Greek market with sardines in olive oil, packed usually in 4-oz. cans. West Germany, Benelux, and the Netherlands ship to the Greek market sardine-like fish in tomato sauce packed in cans with the label "Sardines" affixed to them. Greek importers encourage their foreign suppliers to label cans containing sardine-like fish as "Sardines" for two reasons: (a) canned fish come under two Greek Tariff paragraphs (4d and 4e). Import duties and surtaxes assessed on paragraph 4d exceed those of paragraph 4e by about 20 percent. Sardines and sardine-like fish are dutiable under tariff paragraph 4e. All other canned fish, including those not specifically mentioned in the Greek Tariff, are dutiable under tariff paragraph 4d. To avoid the risk of having their import shipments of sardine-like fish subjected to the higher import duty of tariff paragraph 4d, local importers demand that their suppliers label cans as "Sardines," in which case the higher import duty will not be applied; (b) this practice enables local importers to sell canned sardine-like fish of inferior quality as sardines or pilchards at prices which United States and Japanese packers of genuine pilchards are unable to meet.

Consumption: In Greece, a country with extensive sea coasts, fresh fish appeals to people more than canned fish. However, facilities for distributing fresh fish in the interior of the country are poor and it is in these areas canned fish is consumed. Greek preference is for sardines in olive oil, which are also consumed in the large cities as an appetizer. Canned sardine-like fish as well as pilchards are eaten as a regular meal by low-income groups in the provinces. These groups account for 80-85 percent of total consumption of pil-

Greece (Contd.):

chards, which is placed at about 100-120 tons annually. Inventories in late June were estimated at 25-30 tons.

The majority (95 percent) of Greek consumers prefer pilchards in tomato sauce, and the most popular can sizes are the 5-oz., 1 lb. oval, and 8-oz. oval. These sizes account for about 95 percent of total local sales, with the remainder made up of varied sizes.

Prices: Greek importers of pilchards insist that prices given by foreign packers be c.i.f. Greek port. The long distance involved in the case of shipments originating from Japan and California and the corollary high freight charges render preferable the quotation of prices on a c.i.f. or c.& f. Greek port (usually Piraeus) basis. It should be noted that only small quantities of South African pilchards enter the Greek market (9 metric tons in 1957 and nil in 1958). Table 3 gives prices on a c.i.f. Piraeus basis.

Table 3 - Prices for Sardines Delivered c.i.f. Greek Ports, January-June 1959

Country of Origin	Can	Base Unit	Price 1/ US$ Per Case	Style
Japan	15-oz. oval	48 cans	8.35-8.90	Tomato
	7.5-oz. "	96 "	9.85-10.25	"
	5-oz. tall	100 "	7.80-8.20	"
United States 2/	15-oz. oval	48 cans	9.35-9.55	Calif., Tomato
	15-oz. tall	48 "	7.65-7.85	" "
	15-oz. "	48 "	7.15-7.35	" Natural
Netherlands	7-oz. oval	48 cans	5.20	Tomato
	8-oz. "	48 "	5.40	"
	6-oz. tall	100 "	7.40-7.70	"
	14-oz. oval	48 "	6.60	"
	14-oz. tall	48 "	6.30	"
South Africa	5.5-oz. tall	100 cans	6.60	Tomato
	12-oz. "	48 "	6.30	Natural
	12-oz. "	48 "	6.50	Tomato

1/Sardines in tomato sauce packed in oval cans of 1-lb., 8-oz., and 5-oz. account for 95 percent of sardines or sardine-like fish sales in Greece.
2/United States prices are as of January 1959. Quotations in June 1959 were lower with 48 15-oz. oval tomato cans/cs. offered at $7.00, 48 15-oz. tall tomato cans/cs. $5.50, 48 15-oz. tall natural cans/cs. $5.00, 100 5-oz. tall tomato cans/cs. $6.00, f.a.s.t. California ports with 1.5 percent commission included.
Note: Prices are c.i.f. Greek ports unless otherwise stated and include 5-percent commission for United States and Japanese sardines and 3-percent commission for South African sardines.

Dutch packers of herring in tomato sauce ship their product to the Greek market labeled as "Sardines." The rural population, which is the principal consumer of pilchards, does not differentiate between genuine pilchards and sardine-like fish offered as "large sardines." As a result, Dutch "sardines" are readily marketable in Greece and appear to be the strongest competitors of genuine pilchards, not only because of identical packing and style, but also because of their low price.

Considering that pilchards are consumed by the poorer classes of the Greek population, price is the deciding factor. As a result, competition among foreign suppliers of canned fish in general is very strong in the Greek market. Actual practice has shown that quality is a factor of minor importance as regards the sale of pilchards in Greece.

Import Duties: In the case of Greek tariff paragraph 4e (canned sardines and sardine-like fish), 1 metallic drachma is equal to 10.80 paper drachmas. In addition to the import duty, surtaxes amounting to 75 percent of the import duty are assessed on importation. On this basis, the import duty and surtax on canned sardines, per 100 kilograms (220.4 lbs.) would be as follows:

Most Favored Nation Countries:
- Import duty - 324 paper drachmas
- Surtaxes - 243 paper drachmas
- Import duty and surtax - 567 drachmas or US$18.90 (30 drachmas=$1)

GATT Countries:
- Import duty - 194.40 drachmas
- Surtaxes - 145.80 drachmas
- Import duty and surtax - 340.20 drachmas or US$11.34

A turnover (sales) tax of 1.875 percent of the wholesale price of canned pilchards, calculated on the basis of the c.i.f. price increased by 15 percent is also levied on imports.

Terms of Payment: Under Greek regulations, importers of canned fish in general (tariff paragraphs 4d and 4e) are required to settle payment of their orders with foreign suppliers either by Letter of Credit or cash against shipping documents presented in Greece (sight draft). Time settlement or "in transit" shipments are not permitted. Importers must apply direct to an authorized commercial bank for an import approval (i.e. allocation of foreign exchange) prior to shipment. The issuance of such approvals is a routine operation, but a cash deposit is generally required before an approval is issued. This cash deposit amounts to 100 percent of the c.i.f. invoice value of the order plus 40 percent of the c.i.f. invoice value as an advance against import duties and other taxes, irrespective of the method of payment for the order. In cases of payment against sight draft the 100-percent deposit may, at the request of the importer, be transferred to the foreign supplier in total as full payment or in part as an advance remittance.

Outlook: Sales prospects for California pilchards do not appear favorable. Greek consumer preference is definitely for sardines packed in olive oil. Local importers state that sardines in olive oil can be stored for a long time without spoiling while canned pilchards in tomato sauce are more sensitive to the hot weather of the Greek summer months. Furthermore, canned pilchards are generally considered by local importers as a slow-moving item. Other factors that render canned pilchard imports an "unattractive" business are: (1) under market police regulations local importers are allowed only an 8-percent profit on canned pilchards (which is further reduced when this item is distributed through wholesalers and retailers), and (2) they are required to tie up considerable amounts of capital (140 percent of the c.i.f. invoice value) for long periods of time (in the case of shipments from United States and Japan delivery time is 2-3½ months).

California packers of pilchards are further handicapped by the fact that Dutch, Belgian, and German packers of sardine-like fish are in a position to quote lower prices and effect speedier deliveries. Local importers state that the best chance of transacting business in California pilchards is in the 5-oz. and 1-lb. oval cans packed in tomato sauce and in cases of 100 and 48, respectively, provided that: (1) more advantageous prices are quoted; (2) quotations are for delivery c.i.f. Greek port; (3) payment against sight draft is accepted; and (4) cans are labeled "California sardines." The same sources, however, point out that the aggregate of these transactions cannot exceed, at present, 500-1,000 cases.

Honduras

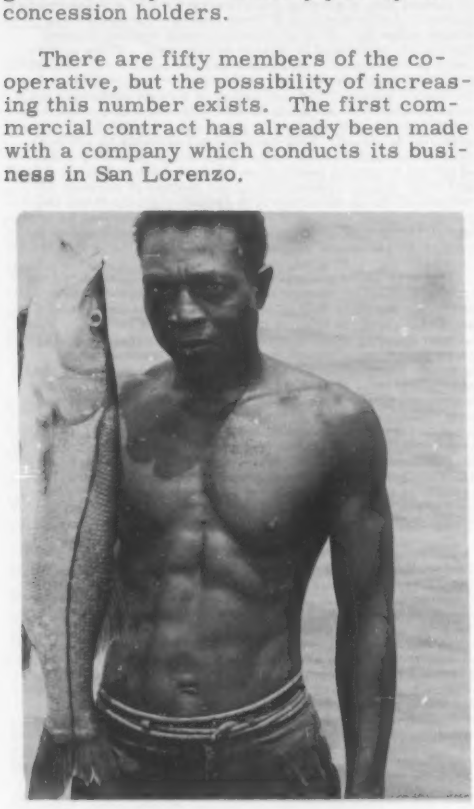
FISHING COOPERATIVE ESTABLISHED: The first cooperative fishing society of Honduras was established on June 14 in the Honduran port of San Lorenzo. The cooperative was organized by all the small fishermen that operate in the area of the Gulf of Fonseca on the Pacific coast.

This cooperative is one of the immediate practical results of the new Law of Fishing recently approved by the National Congress. This Law (published in La Gaceta) is in full force and grants special privileges to cooperative bodies, such as, preference in fishing in zones in which are domiciled more than one-half of its members, and exemption from the

Honduras (Contd.):

guarantee deposit normally paid by all concession holders.

There are fifty members of the cooperative, but the possibility of increasing this number exists. The first commercial contract has already been made with a company which conducts its business in San Lorenzo.



Fisherman of Honduras holding a snook.

In respect to this new organization, it also should be mentioned that within the National Economic Council is a commission of experts organized for the purpose of writing additional regulations to the fishing law, the United States Embassy in Tegucigalpa reported on June 30, 1959.

Iceland

FISHERIES TRENDS, SECOND QUARTER, 1959:

Iceland's total white fish catch January-May 1959 amounted to 237,152 metric tons as compared to 227,706 tons for the first five months of 1958, which itself was one of the best winter seasons on record. The gloom which prevailed in fishing circles during February and most of March, when exceptionally prolonged storms limited catches, was dispelled by the fine catches in April.

A notable feature of the season was the rise in the catch of ocean perch, which usually is fished by trawlers later in the year. Largely because of the effect of the 12-mile limit, which excluded Icelandic trawlers from some of their favorite cod fishing grounds, the trawlers remained late on the Newfoundland ocean perch banks before returning for the Icelandic winter cod season. Well before the end of the season many of the trawlers had gone back to North American waters. As a result, although the trawlers caught slightly more than half the cod which they had taken during the 1958 winter season they brought in considerably more ocean perch. (Total catch of ocean perch for January-May 1959 amounted to 33,767 tons as compared to 12,202 tons for the first five months of 1958.)

While the 12-mile fisheries limit inhibited the trawler catches of cod, the motorboats benefited by the new limits. Due also to improvement in gear and increased use of nets, the motorboats caught 148,861 tons of cod during the first five months of 1959, compared to 134,485 tons during the same period last year. This gain was offset by reductions in the cod catch of Icelandic trawlers, however, so that the total landings of Iceland's most important fish species (cod) was slightly less for January-May 1959: 174,440 tons as compared to 180,015 tons in 1958.

Of the minor fish species, there were slight declines compared to last year. Flatfish landings were about 10 percent lower, and haddock amounted to 10,239 tons as compared to 12,778 tons for the five months in 1958.

It was the continued heavy catches of ocean perch in the waters north of Newfoundland which accounted for the fact that this year's total catch of all species

Iceland (Contd.):

of groundfish exceeded that of last year by 4.4 percent for the five-months period.

Catch statistics for June were not yet available, but reports indicated continued good landings by the trawlers. At the same time, there were indications that the new ocean perch grounds might be giving out. More days were required by the Icelandic trawlers to fill their holds, and some of the trawlers returned to home waters.

The main north coast herring season commenced with relatively bleak prospects. The Norwegian, Soviet, and Icelandic biologists who survey the area each year before the opening of the season met at Thorsavn in the Faroes to compare findings, and they issued a rather somber report featuring the scarcity of plankton and implying a poor season.

When fishing actually started, during the last two weeks of June, early results seemed to bear out this pessimism. The herring was much leaner than last year; by June 11 only 2,652 tons of salting quality had been caught as compared to 18,816 tons at the same time last year. The total catch at that date, 21,235 tons, was slightly below that for the same date in 1958 (23,701 tons).

But in mid-June, however, there has been a dramatic improvement. Not only has the herring appeared in greater volume, but the fat content has improved so markedly that a much higher proportion is available for salting. As of July 18, with some six weeks of the season still to go, herring catches were as follows:

Icelandic Herring Catches, January 1-July 18, 1958-59

	1959		1958	
		Metric Tons		Metric Tons
For:				
salting	86,928 bbls. 1/	11,735	181,232 bbls.	24,466
reduction	230,984 mal 1/	31,183	93,161 mal	12,577
freezing	8,991 bbls. 2/	899	5,534 bbls.	553
		43,817		37,596

1/ 298 pounds each.
2/ 220 pounds each.

Even if, as now seems quite likely, the herring catch should exceed that of last year, it is quite possible that the foreign exchange earnings would be less, because advance sales contracts for salted herring, the most valuable form of processing, have been very disappointing. There is some consolation, however, herring used for meal and oil, although less profitable, does earn free currency, whereas the bulk of the salted herring has been sold to the clearing agreement countries of Eastern Europe.

The United States, which has purchased an increasing amount of Iceland fish as a result of poor Canadian catches, has replaced the Soviet Union as Iceland's chief customer and chief supplier, reversing the relative positions of the two countries during the same period of 1958.

In preparation for the summer herring season, the Icelandic fishing industry pressed the Government for improved terms. In the Export Fund Law of May 1958 the 80 percent export premium applicable to white fish products (resulting in an effective export exchange rate of Ikr. 29.26 to the dollar) was not extended to herring, which was considered more competitive. North coast herring was limited to a 55-percent premium (comparable to the general effective rate for tourism, shipping, etc.), while south coast herring, which was considered to be in not quite so strong a position, was given a premium of 70 percent. The herring producers, many of whom suffered losses under this system last year, demanded to be placed on a basis of equality with white fish producers, with an export premium of 80 percent. This concession actually was granted last autumn for the south and west coast herring; the north coast curers demanded parity of treatment before the opening of the 1959 summer season. Negotiations with the Government finally ended, in June, with agreement to pay a 75-percent premium on salted herring and 70 percent for herring delivered to factories for processing into meal and oil.

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REYKJAVIK CITY COUNCIL BUYS STATE-OWNED FISH PROCESSING PLANT:

The City Council of Reykjavik, Iceland, on behalf of the Municipal Trawler Company, has approved the purchase of

Iceland (Contd.):

the Icelandic Government-owned fish processing center. This plant was established by the Government in 1947 as a prototype for privately-owned fish processing and freezing plants.

The price, as assessed by independent appraisers, was fixed at Ikr. 29,250,000 (about US$1,799,000 at the exchange rate of 16.26 Ikr. to US$1). The Municipal Company will be faced with additional expense in expanding the capacity of the plant. It has not been decided if the present herring canning part of the center will be retained.

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SALT HERRING MARKETING PROBLEMS ARISE:

Due to reductions in advance commitments by Russia, Finland, Sweden, and a delay in negotiating a contract with East Germany, a marketing problem for Iceland's salt herring production has arisen. As of the end of June, Russia had signed up for 40,000 barrels of north coast herring as compared with the 150,000 barrels of north and southwest coast herring purchased in 1958 and 1957. Finland, which contracted for 58,500 barrels in 1958, has signed for 50,000 barrels of north coast herring this year. Sweden has ordered 60,000 barrels this year as compared with 72,500 in 1958.

Both Russia and East Germany were reluctant to open negotiations for supplies of Icelandic herring, despite pressure by the Icelanders to bring about agreements before the herring season opened. The Russians finally agreed on June 24 to take 40,000 barrels and the East Germans agreed to open negotiations on June 28, 1959.

The trade agreement between Iceland and Russia was made in 1956 and is effective until December 31, 1959. The agreement calls for 150,000 barrels of north and southwest coast herring. The East Germans contracted for 40,000 barrels of south coast Icelandic herring in 1958.

Iran

CONTRACTS FOR CAVIAR AND STURGEON PRODUCTION SIGNED:

The National Iranian Fisheries Company (Shilat) has signed three contracts for the caviar and sturgeon production of the Caspian Sea for the year beginning July 24, 1959. The Shilat advertised for bids on March 21, 1959, which were opened on May 2, 1959. For the American and European markets this was the first occasion since 1956 that the caviar and sturgeon were open to award, because in that year a United States firm and a French firm for the European market secured 3-year contracts which expired on July 24 this year. The Soviet contract is negotiated on an annual basis.

Eight bids were submitted, of which one was American. While the American bidder won the major award for the American market, a British company was two months ago granted 5 metric tons for the American market and 5 tons for the European. This was said to be in line with the Shilat's idea of preventing a monopoly contract in any area. The Shilat has now agreed with the American bidder, however, to give him exclusive rights.

National Iranian Fisheries Company--Caviar and Sturgeon Contract Awards

	United States	Soviet	British		French
			U.S. Mkt.	European Mkt.	
	Quantity	Prices			
	1,000 Lbs.	(US$ a Pound)			
Caviar:					
Beluga, No. 1	24.2	11.83	11.34	12.84	17.60	15.88
Beluga, No. 2	3.3	6.80	-	8.53	11.79	9.34
Asetra, No. 1	3.2	11.83	10.88	12.25	15.92	13.65
Asetra, No. 2	3.0	6.80	4.90	9.43	12.70	8.44
Sevruga, No. 1	5.9	6.35	7.14	6.40	9.43	7.26
Sevruga, No. 2	32.1	3.40	3.43	3.24	-	-
Pressed, No. 1	6.8	2.95	3.21	3.18	3.18	3.08
Pressed, No. 2	9.7	2.36	2.35	3.08	2.72	2.63
Total Caviar	88.2	-	-	-	-	-
Sturgeon	-	405.00	1/320.00-2/400.00	-	-	381.00

(US$ Per Ton)

1/Second grade (less 10 percent).
2/First grade.

The United States firm signed a contract with the Shilat on July 11, 1959, to become effective July 24, 1959, for a three-year period. The caviar and sturgeon may be marketed in any territory except Europe and the U.S.S.R. Forty metric tons of caviar are to be delivered in the first year, 50 tons the second, and 60 tons the third.

A notable aspect of the contract is the large quantity of sturgeon, 250 metric tons, to be taken annually. Only 50 tons were hitherto taken by the United States, and it is understood that there was some difficulty in selling that quantity.

The Soviet contract, signed July 11, 1959, is for one year only. It calls for 46 metric tons of caviar at prices understood to be higher than last year's by 25 percent for first grade types and 20 percent for second grade types. Of this caviar, 33 tons are to be delivered in the third quarter of 1959. In addition, the Soviets agreed to take 600 tons of sturgeon at a price of US$320 per ton (less 10 percent) for second grade, as compared with US$340 per ton last year.

The British company contract (controlled by a Swiss national resident in Tehran) originally called for 5 tons of caviar for the American market and 5 for the European market. The contract was signed two months ago and about 4,000 pounds for the European market have already been delivered.

It is understood that the Shilat is signing a contract with the French interests, which had the previous three-year contract for 40 tons of caviar and 50 tons of sturgeon, according to a July 14, 1959, dispatch from the United States Embassy at Tehran.

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Iran (Contd.):

SHRIMP FISHERY TRENDS, APRIL-JUNE 1959:

Shrimp fishing operations in the Persian Gulf had virtually come to a halt at the end of June. The shrimp fishing company operating out of Iran had been hopeful of operating year-round, but the June trips of the two trawlers, which covered the Iranian coast from Jask to the mouth of the Shatt-Al-Arab, produced less than a ton of shrimp.

The Iranian shrimp fishing company began fishing in June 1958 and throughout the hot summer months until October their catch was negligible. The United States fishermen operating the boats are convinced that the season lasts from October through April. During the company's first year of operation approximately 285 tons of shrimp were caught with two boats in operation.

Seven 65-foot trawlers, which were scheduled to arrive on cargo vessels in late May and June, were delayed by Persian Gulf port congestion and were not scheduled to be off-loaded until mid-July. A new freezership to be used in conjunction with the trawlers is now being outfitted in Houston, Texas, and will arrive in the Persian Gulf in the fall. With the additional fleet, the operators expect to increase their catch considerably. (United States Consulate in Khorramshahr, June 30, 1959.)

Japan

CANNED FISHERY PRODUCTS EXPORTS, 1957-1958:

Exports of canned fish and shellfish by Japan in terms of cases in 1958 amounted to 9,198,000 actual cases, up by 23.3 percent from the 7,461,481 cases exported in 1957. The United States was Japan's only customer for canned tuna in brine, which accounted for 58 percent of all types of Japanese canned tuna exports in 1958.

Increases in Japan's exports of canned salmon or salmon trout amounted to 80.0 percent, or from 1,540,211 cases in 1957 to 2,781,363 cases in 1958. Exports of all types of canned tuna were higher by 186,000 cases in 1958, with a drop of 15.7 percent in the exports of canned tuna in oil more than offset by an increase of 16.5 percent in exports of canned tuna in brine and a 427-percent increase in the exports of unclassified canned tuna.

Exports of mackerel-pike or saury were up sharply (70 percent) in 1958, but sardine exports dropped by 21.4 percent in 1958 as compared with 1957. Canned shellfish other than king crab in 1958 increased to 339,732 cases from 1957 exports of 223,435 cases.

Japanese Exports of Canned Fishery Products By Country of Destination, 1958

Canned Product	United States	Canada	Other	Total 1958	Total 1957
	..... Cases				
Crab (king and other)	285,501	7,502	316,407	609,510	601,393
Tuna:					
In Oil	-	184,564	1,120,501	1,305,065	1,547,854
In brine	2,031,584	-	-	2,031,584	1,744,260
Other	2,931	7,407	164,198	174,536	33,142
Total tuna	2,034,515	191,971	1,284,699	3,511,185	3,325,256
Mackerel-pike (saury)	7,963	1,044	955,808	964,815	567,811
Sardine	10,410	20	682,272	692,702	880,960
Salmon	402,962	43,232	2,335,169	2,781,363	1,540,211
Other fish	6,653	604	282,808	292,065	310,532
Shellfish	234,326	66,310	39,096	339,732	223,435
Other aquatic products	4,374	174	2,080	6,628	11,883
Total all canned products	2,988,804	310,857	5,898,339	9,198,000	7,461,481

Source: Japanese Fish Exporters Association.

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SUMMER ALBACORE FISHING ENDS WITH LANDINGS OF 10,400 TONS:

The 1959 Japanese summer albacore fishing season continued through July, about half a month longer than in normal years, but was about finished by early August. At that time there were no more boats on the fishing grounds, and only 2 or 3 due to land. Landings to the end of July were 10,400 metric tons, about 90 percent of which was bought by canners.

This year the canners were hoping to get about 16,000 tons of summer albacore, and the freezers' needs brought the total requirements to about 26,000 tons. Because of the shortage, the price went to 183 yen per kilogram (US$461 a short ton) on June 26 at Shimizu, the highest ever recorded at that port. At such prices, the freezers have not been able to buy and the cold-storage warehouses are empty.

There was an unusually large number of boats fishing this year. About 200 boats from all over the country now operated between 50 and 500 miles east of

Japan (Contd).:

Cape Nojima during the summer albacore season. Catches per vessel did not drop after the first of July, but rather took a turn for the better. It is unusual for the number of boats fishing in July to exceed those that were out at the beginning of the season, and it is also unusual for the fishing grounds to be located so close to Japan so late in the season.

The Tokai University Fisheries Laboratory in Shimizu predicted that there would be a good possibility of large catches in early and mid-July in areas comparatively close to the coast. This prediction was supported by the fact that the majority of boats from Mie, Kagoshima, and Shizuoka prefectures had moved to grounds at 147° E. longitude and were making good catches of the smaller fish, which in normal years made up the bulk of the summer catch. Under these circumstances, the price dropped from its previous level and settled down between 145 yen and 155 yen per kilogram ($355 and $390 a short ton). The large 300-gross-ton bait boats from Omaezaki did not do well on summer albacore. (Nippon Suisan Shimbun, July 8, 1959.)

The current Japanese frozen albacore tuna price is US$400 f.o.b. Japan for 20-30-pound fish. No improvement in the Japanese frozen albacore export price is expected unless United States landings are light or the price in the United States goes up (Nikkan Suisan Tsushin, August 1 and 3, 1959.)

* * * * *

REPORT ON ONE EXPORT SALE OF FROZEN ALBACORE TUNA TO U. S.

Trading and negotiations by a large United States cannery have started for the purchase of mothership frozen albacore tuna produced by a large Japanese company. The first shipment, 25 tons of albacore and 150 tons of yellowfin, was shipped to the cannery of the West Coast tuna packer. The albacore base price of US$360 a ton f.o.b. indicated that the mothership albacore export price was not as high as had been reported.

The Japanese firm plans to export 4,000 short tons of mothership-frozen albacore to the United States this year, and it is expected that almost all of this will be sold to one West Coast tuna packer. The same packer is reported also able to buy this year over 2,000 tons from another Japanese company's New Hebrides base. The concensus in Japan is that the frozen albacore price of $360 is probably the lowest for this season. (Nikkan Suisan Tsushin, July 23, 1959.)

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ALBACORE TUNA FISHING OUT OF AMERICAN SAMOA GOOD:

Albacore tuna fishing out of the Japanese overseas base of American Samoa continues good, and the price since the first of the year has gradually risen from the low of US$250 a ton. In July it jumped to $310 a ton. For this reason, the Japanese vessel No. 18 Zensho Maru (158 tons), which fished en route to Samoa on a new ground east of Australia and caught about 90 tons, mostly albacore, landed a fare worth over US$27,000, a new record for Samoa. (Suisan Keizai, July 18, 1959.)

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TUNA CATCH FOR 1958 AND ESTIMATES FOR 1959:

Landings of tuna in 1958 by fishing boats operating out of Japanese ports, out of foreign ports, and in South Pacific mothership fleets totaled 416,248 metric tons.

On the basis of the 1958 catch and examination of the prospects in several of the fisheries this year, estimates of the 1959 catch are (in metric tons): yellowfin 120,000, skipjack 150,000, bluefin 30,000, big-eyed 70,000, and albacore 45,000; total 415,000 tons.

Japan's Worldwide 1958 Tuna Landings

Area of Landing	Species			
	Yellowfin	Albacore	Big-eyed	Total
	(Metric Tons)			
Japan	76,735	46,327	70,048	1/361,590
Samoa	1,966	8,169	432	10,567
New Hebrides	1,020	2,593	135	3,748
Italy	11,478	115	109	11,702
Brazil	6,033	1,119	210	2/ 7,396
Cuba	1,575	91	22	1,688
Trinidad	1,984	24	28	2,036
Panama	3,483	394	18	3,895
Haiti	2,384	219	47	2,650
Argentina	5	28	-	33
Israel	210	2	19	231
Motherships	4,657	4,096	1,911	3/10,710
Totals	111,530	63,177	72,979	4/416,248

1/Includes skipjack (147,388 tons) and bluefin (21,092 tons).
2/Includes bluefin (34 tons).
3/Includes skipjack (42 tons) and bluefin (4 tons).
4/Includes skipjack (147,430 tons) and bluefin (21,130 tons).
Source: Japanese Fishery Agency.

Japan (Contd.):

Total fishing power is increasing gradually, as there is considerable new construction of larger and more efficient boats. The dispatching of many of the biggest tuna boats to the rich Atlantic grounds should result in a considerable increase in the yellowfin catch, although yellowfin landings in Japanese ports may be expected to decline somewhat. The Atlantic yellowfin catch will depend to a large extent on the strength of the United States canners' demand, the progress toward solution of quality problems in Atlantic yellowfin, and the opening up of additional markets in Europe, Africa, and South America. The homeland landings of albacore will be very poor, possibly less than half of last year's. The big question here is the extent to which this decline can be made up by increased effort in other areas. With respect to both yellowfin and albacore, the biggest unknown factor is the mothership fleet fishery in the South Pacific. There are plans for two additional fleets to operate this year, but the Government has not yet decided whether to permit these operations. In view of the short albacore supply, it seems reasonable to expect that such additional fleet operations might be permitted on condition that they concentrate on albacore production. There is also a possibility that revision of production quota allocations might be made to allow greater production of albacore by clippers fishing the Atlantic.

The bluefin catch looked better in the early months of this year than last year, but the landings are rather evenly distributed over a large part of the year, and it is hard to predict what the total landings may be. The species is not a factor in the export trade anyway. The abundance of big-eyed tuna usually follows that of albacore, and therefore the catch from near grounds may be expected to drop; however, good big-eyed fishing can be found by sending vessels to the central and eastern Pacific, and with the increasing demand for sausage material it seems likely that most of any decline in the western Pacific catch may be made up by operations in more distant grounds.

The skipjack catch may well be badly underestimated. Last year's landings of this species were the greatest in recent years, but this year skipjack appear to be at least equally abundant, and the scarcity of albacore in the summer season has diverted additional fishing effort to skipjack, according to a July 10, 1959, dispatch from the United States Embassy at Tokyo.

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CATCH OF TWO TUNA MOTHERSHIP FLEETS EXCEEDS 4,700 METRIC TONS:

The Japanese tuna mothership No. 3 Tenyo Maru had as of July 27 received from her catcher boats 2,544 metric tons of fish, from which 2,282 tons of products were processed and most of which consisted of: round yellowfin 650 tons, round albacore 818 tons, yellowfin fillets 75 tons, other round and filleted tunas 213 tons, and round and filleted spearfishes 211 tons.

A second tuna mothership, Nojima Maru, had taken aboard as of July 25 a total of 2,212 metric tons of fish, from which the following was produced: round albacore 252 tons, round yellowfin 344 tons, yellowfin fillet 386 tons, filleted and round spearfishes 168 tons. (Nikkan Suisan Tsushin, July 31, 1959.)

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EXPORT PRICES OF FROZEN YELLOWFIN TUNA INCREASED:

According to Japanese press reports, the Japan Frozen Food Exporters' Association on July 2, 1959, decided to raise the basic price of frozen yellowfin tuna for export to the United States by US$25 a short ton, effective July 3.

The new tuna export prices have the status of unofficial minimum or check prices, to be enforced by agreement among members of the exporters' association. The official check prices, which are enforced by the Ministry of International Trade and Industry, remain unchanged. Under the official schedule, the basic price, that for gilled and gutted 20- to 80-pound yellowfin tuna f.o.b. Japan, is still $220 a short ton. From this base price, various differentials are figured for other sizes of fish or for fish in other stages of preparation, as well as for transshipment exports through foreign ports.

Under the Association's new export price schedule, 20- to 80-pound yellowfin gilled and gutted will be sold at not less than $245 a short ton f.o.b. Japan. Yellowfin 80-100 pounds will be $235 and fish over 100 pounds will be $215. The unofficial f.o.b. Tokyo check price for fillets will be $235 and for dressed (i.e., beheaded) tuna, $215. Gilled and gutted fish of 20-100 pounds transshiped through Cristobal and Trinidad will be $230 f.o.b. with dressed fish over 90 pounds $215, and fillets $230. Tuna delivered at Ponce, Puerto Rico, will be subject to c. and f. check prices of $275 for gilled and gutted 20- to 100-pound fish, $260 for dressed fish over 90 pounds, and $275 for fillets.

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TUNA EXPORT REGULATION COUNCIL CONSIDERS EXPORT PROBLEMS:

On July 30, 1959, the President of the Japan Federation of Tuna Fishery Associations, the Chairman of the Export Tuna Freezers' Association, the Managing Director of the Export Tuna Canners' Association, and others met with the Director of the Japanese Fisheries Agency to discuss tuna export problems, and particularly the inter-governmental negotiations proposed by United States

Japan (Contd.):

Secretary of the Interior Seaton, and to formerly initiate the activities of the new Tuna Export Regulation Council.

The Council discussed problem points and considered solutions in three areas: (1) adjustment of export volume and prices; (2) coordination of frozen tuna and canned tuna exports; and (3) other important matters related to tuna exports and the development of the tuna industry.

The Council will be composed of the presidents and managing directors of the three organizations, and for the time being the Council will hold regular meetings once a month. Special meetings will be held whenever one of the members or the Japanese Fisheries Agency requests consideration of a special problem. Administrative work for the Council will be handled by the Fisheries Agency.

Top officials of the Japanese Fisheries Agency explained to the tuna industry leaders assembled the content of the conversation between U. S. Interior Secretary Seaton and Japan's Agriculture Minister Fukuda and their thinking with regard to it. First of all, they wish to hear from the United States Embassy concerning the subjects for discussion at the proposed tuna conference, and if, after detailed examination, they consider that there is a necessity for the negotiations, they are inclined to accept Secretary Seaton's proposal and take part in such a conference. (Nikkan Suisan Tsushin, July 31, 1959.)

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TUNA LOIN EXPORTS, APRIL-JUNE 1959:

Japanese exports of tuna loins to the United States during April-June this year amounted to 800 short tons, according to Japan Frozen Food Exporters Association. The total consisted of albacore loins 277 tons, and yellowfin loins 523 tons. Because of very light albacore catches, the export price of albacore loins rose substantially. At the opening of the business year on April 1, the official export check price was US$730 a ton f.o.b Japan. The price then gradually rose until it reached around $860 at the end of June.

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DIRECT FROZEN TUNA EXPORTS FROM ATLANTIC FISHERY TO EUROPE INCREASE:

Japanese direct exports of frozen Atlantic-caught tuna to European countries other than Italy, which began this year, had reached 2,626 metric tons by the end of June 1959.

To Yugoslavia: 435 tons on January 26 from the No. 12 Zenko Maru; 250 tons on April 2 from the No. 10 Kotoshiro Maru; 440 tons on April 15 from the Kinryu Maru; 275 tons on April 26 from the No. 26 Hoko Maru; 200 tons on May 30 from the No. 31 Hoko Maru; 310 tons on June 15 from the No. 2 Koyo Maru; total 1,910 tons.

To France: 176 tons on June 2 from the No. 1 Zenko Maru; 350 tons on June 10 from the No. 18 Symiyoshi Maru; total 526 tons.

To Greece: 190 tons on March 23 from the No. 1 Zenko Maru. (Nikkan Suisan Tsushin, July 9, 1959.)

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ASSOCIATION TO STUDY CAUSES OF "GREEN COLOR" ATLANTIC YELLOWFIN TUNA:

Percentage of rejects at California canneries of frozen Atlantic yellowfin tuna caught and delivered by Japanese has been quite high this year. Therefore, the Japan Export Frozen Fishery Products Inspection Association early in July asked the cooperation of operators of Japanese tuna vessels in the Atlantic in investigating the causes of the "green color" of some tuna after they are cooked for canning. The purpose is to improve the product and cut down on the rejects because of "green color."

Owners of vessels engaged in the Atlantic tuna fishery have been sent forms on which details of fish-handling and processing aboard the vessel are to be recorded. At the conclusion of each trip

Japan (Contd.):

at Cristobal or a European port, the captain will forward the report form for the cruise to the Inspection Association representative in Long Beach, Calif., or Venice, Italy. The Association will study the form on each lot of tuna and will make a detailed report through the exporting company to the vessel operator. Periodic reports of over-all findings will also be published. (Suisan Keizai Shimbun, July 9, 1959.)

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TUNA VESSELS REPORT GOOD FISHING OFF NEW ZEALAND:

According to reports received at the Japanese port of Shimizu, the fishing off New Zealand for Australian bluefin tuna is quite good this year. The Japanese vessels No. 7 and No. 8 Myojo Marus, of Omaezaki Port, have been making catches of 7 to 12 metric tons a day in the area around 38° S. 160° E. It is also reported, however, that the trade winds are strong in that area and that fishing is extremely difficult.

Nevertheless, it was expected that most of the large vessels sailing south in July would go to the New Zealand grounds. The No. 18 Kaikei Maru sailed for those grounds from Omaezaki on July 2 taking along cold-weather gear, for the air temperature in the area is 57°-59° F. (Nippon Suisan Shimbun, July 8, 1959.)

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SHIPYARD DESIGNS MORE EFFICIENT TUNA LONG-LINER:

A Japanese shipyard has completed the design of a new type of tuna long-liner that will carry over 10 percent more fish than previous types of the same size. Among the reasons why the shipyard undertook this study is the fact that, with the prospects of excess salmon fishermen coming into the tuna fisheries as a result of reorganization of the North Pacific fishery, the price per ton for tuna boat construction rights has risen very high. For this reason prospective builders are seeking designs that give a high carrying capacity in proportion to gross tonnage.

The design is for a 250-gross-ton vessel that is said to have a carrying capacity equal to a 300-ton vessel. Hitherto 250-ton boats have carried only 148 to 152 short tons, but the new design is expected to carry about 168 short tons. It will have a daily freezing capacity of 8 tons, as compared with the 3 tons usual on boats of this tonnage. (Nikkan Suisan Tsushin, July 8, 1959.)

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BUILD MORE TUNA LONG-LINERS:

A Japanese fishing company recently purchased from another Japanese firm the 700-gross-ton 1,200-hp. tuna vessel No. 10 Seisho Maru for 120 million yen (US$336,000). The company is further planning to build two new tuna boats of 480 tons gross, for which it has already collected most of the tonnage rights. Construction will start on the first vessel this autumn.

On July 30, 1959, the Japanese Fisheries Agency published announcements of the granting of 23 fishing boat construction permits, among them a 679-gross-ton tuna long-liner (Eikyu Maru) for another fishery firm. Building of the Eikyu Maru, equipped with 1,300 hp., was scheduled to start August 1, and completion was expected in November. It will cost about 210 million yen (US$588,000). (Nikkan Suisan Tsushin, August 1, 1959.)

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TUNA FISHERY NOTES:

With the development of the Atlantic tuna grounds, Japan's large tuna long-liners are exporting Atlantic tuna to the United States and Europe. A large Japanese fishing company is pushing plans to establish a tuna fishing base in Liberia, on the African west coast. The prospective location is either Monrovia or Sila.

The two Japanese fishing companies catching tuna for the American Samoa tuna cannery and the United States fish canner operating the Samoa cannery have agreed to raise the ex-vessel price of albacore tuna delivered to Samoa to $275 a ton as of June 1, 1959.

The ex-vessel price of Atlantic-caught yellowfin tuna delivered by Japanese

Japan (Contd.):

long-liners to Yugoslavia in June was $285 a metric ton--$3-$4 cheaper than earlier this year.

Miura City, Japan, in which the port of Misaki is located, has determined the leading tuna long-liners of 1958 in terms of value of catch landed. Vessels over 350 tons gross: No. 15 Marutaka Maru, 86,187,343 yen (US$239,400); Chosei Maru, 66,378,939 yen (US$184,400); Nachi Maru, 63,183,420 yen ($175,000). Vessels of 200 to 350 gross tons: No. 10 Koyo Maru, 58,247,356 yen ($161,800); No. 18 Koyo Maru, 56,563,025 yen ($157,100); No. 11 Kompira Maru, 55,750,973 yen ($154,900). Vessels under 200 tons gross: No. 11 Hakko Maru, 48,552,031 yen ($134,900); No. 2 Chidori Maru, 38,490,233 ($106,900); No. 6 Sumiyoshi Maru, 36,748,654 yen ($102,100).

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CANNED SALMON 1959 PACK ALMOST SAME AS LAST YEAR:

All of the Japanese North Pacific salmon factoryship fleets ended operations on July 26. The 1959 pack of canned salmon by the mothership factoryship fleets and the land pack combined totaled 2,180,000 cases as compared to 2,213,000 cases in 1958.

The drop in the pack of silvers was natural because operations ended 15 days earlier than last year, but pink production was far above expectations because of heavy catches after the middle of July. Around the first of July it was expected that chum production might reach 400,000-500,000 cases, but catches were unexpectedly small toward the end of the season. The red catch was about as expected.

Table 1 - Japanese Canned Salmon Pack by Species, 1958-59

Species	1959	1958
	(Cases)	
Red	500,000	666,000
Silver	80,000	193,000
Pink	1,250,000	924,000
Chum	300,000	375,000
Tidbits	50,000	55,000
Total	2,180,000	2,213,000

Although the total catch limit within the Japan-Soviet Treaty area was cut by 25,000 tons this year, the production of canned salmon was not much different from that of last year. With canned salmon prices up and sales going well, the operating companies cut back their production of frozen and salted salmon and canned the fish instead. Also there was a considerable increase in the catch by Hokkaido-based boats operating south of the Japanese-Soviet treaty line and consequently the Hokkaido canned salmon pack was better this year than last.

Of this year's estimated salmon pack, 50,000 cases of pinks and 150,000 cases of chums are slated for the domestic market, so it is anticipated that somewhat less than 2 million cases will be consigned to the joint sales company for export (last year 2,002,000 cases were consigned). (Nikkan Suisan Tsushin, August 1, 1959.)

The last of the 16 salmon canneryships returned from the North Pacific fishing grounds to Hakodate on August 5, ending a high-seas salmon fishing season which had started out under a gloomy threat of financial losses to all hands but which finished on a cheerfully profitable note. Because of the long drawn out negotiations with the U.S.S.R. over this year's catch quota, the fleets began fishing ten days later than they did last year, but because of good catches and favorable weather filled their catch quotas by July 27, 14 days earlier than last year. The economies resulting from this short operation and the 10-percent higher canned salmon prices this year, are considered to have made the season a profitable one for all participants.

The Japan-Soviet Fisheries Commission set the total Japanese salmon catch quota for 1959 in waters north of 45° N. latitude at 85,000 tons, a reduction of 25,000 tons from last year. Of this quota, 70,834 tons were allocated to the high-seas factoryship fleets. Preliminary reports indicate that the actual catch was about 70,650 tons, with the following composition by species: red salmon, 15,400; pink salmon, 27,000; chum salmon, 24,400; silvers, 3,600; chinook, 200. Red salmon were under a special catch limit of 16,000 tons.

Japan (Contd.):

Surprisingly, the over-all Japanese canned salmon production this year is reported to be only slightly below that of last year, in spite of the 25,000-ton reduction of the catch quota within the Japan-Soviet treaty area.

Returning fishermen reported that Soviet patrol activities on the fishing grounds were even more intensive than last year, with two or three inspections of each mothership and visits of Soviet inspectors to several fishing boats of each fleet. Stepped-up Japanese patrols to prevent violations of treaty regulations apparently kept incidents to a minimum.

A special feature of this year's salmon fishing was a concerted effort by the Japanese to establish the degree of predation on salmon by sharks. There has been no report as yet of the findings of a vessel despatched especially for this purpose, but it is claimed that of the 100 to 500 sharks examined aboard each mothership, about 80 percent contained salmon.

The catch per mothership as of July 20, 1959, was 4,063.6 tons as compared with 4,153.8 tons as of the same date in 1958. The average per catcher was 141.3 for this season as compared to 144.5 tons for the 1958 season.

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NORTH PACIFIC SALMON FACTORYSHIP COMPANIES BENEFIT FROM SHORT SEASON:

This year's Japanese North Pacific factoryship-mothership salmon fishing has gone very smoothly. The last of 16 factoryships was scheduled to return to Hakodate on August 6, 1959. On the fishing grounds of the Aleutian area the fleets filled their catch quotas by July 27, 14 days ahead of the August 10 closing date set under the Japan-Soviet fisheries treaty, and as a result the financial losses that were feared before the season started have been avoided and all of the operating companies are considered to have profited.

This year's Japanese fishery negotiations with the U.S.S.R. resulted in a broad cut of the salmon catch quota within the treaty area to 85,000 metric tons from last year's 110,000 tons. Out of the total quota the mothership fleets were allotted 70,834 tons. According to the mothership operators, when fishing ended on July 27 about 70,650 tons of the quota had been taken, but it is considered that exact fulfillment of the quota is technically difficult.

The salmon species composition of the catch by the factoryship fleets was: reds (which were under a special voluntary limitation of 16,000 tons), 15,400 tons; pinks, 27,000 tons, or more than 30 percent of the total; chums, about 24,400 tons; silvers, 3,600 tons; and kings, 200 tons.

The main reasons for the early fulfillment of the quota (which was barely filled by August 10 last year) were: (1) This was a peak year in the pink salmon cycle, and the fish were large. Especially heavy concentrations of pinks were encountered late in July off the southern tip of Kamchatka. (2) In most years about 10 days of fishing are lost because of bad weather, but this year the weather was fine and operations were almost uninterrupted. As a result labor costs, fuel cost, and other expenses for the motherships were less than expected, while the export prices for canned salmon are up about 10 percent. Furthermore, salted salmon is selling at a high price on the domestic market, so overall money receipts are beyond early expectations. (Asahi Shimbun, August 4, 1959.)

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SALMON STUDY TEAM TO VISIT KAMCHATKA:

On August 3, 1959, the Japanese Fishery Agency announced that the Soviet Government had assented to a Japanese request to send a team to study salmon resources in Russia. At the 1959 Japan-Soviet fishery negotiations both sides agreed to exchange groups of experts for this purpose. Late in June the Japanese made their request, which has now

Japan (Contd.):

been answered. The Soviets are also expected to submit a specific request to Japan shortly.

The Japanese team will be headed by Professor Hiroaki Aikawa of the Kyushu University Faculty of Agriculture and will include Yoshimi Hirano of the Herring Section of the Hokkaido Regional Fisheries Laboratory, Tojiro Shinada, chief of Nichiro Fishing Company's North Pacific Division, and Jiro Imai of the Foreign Ministry. Their plan is to study salmon resources and fishing operations for three weeks, beginning August 10, at Ust-Bolsheretsk and Ozernovski in western Kamchatka. They sailed from Hakodate for Nakhodka on August 9 aboard the Fishery Agency patrol craft No. 15 Konan Maru. (Nihon Keizai Shimbun, August 4, 1959.)

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FISHING INDUSTRY ENJOYING A "QUIET BOOM:"

As of August 1959 both large and medium-size Japanese fishery enterprises were enjoying an unexpected prosperity. Because of publicity about the difficult Japan-Soviet fishery negotiations, worsening of the problems between Japan and the Chinese Communists and Koreans, and uncertainty about the form which Antarctic whaling operations will take, this prosperity has not been reflected in any marked rise in value of fishery companies' securities, but in general, all company's sales have increased at a rapid rate since spring and their business is in good shape, so that the situation can be characterized as a "quiet boom."

The following may be cited as some of the causes of this prosperity. Last year's Antarctic baleen whale oil sold on the average for export at 73,532 yen (US$204) per metric ton, while the price for domestic sales was 85,000 yen (US$236) for an over-all average of 74,258 yen (US$206) per ton. This year the export price was 71,997 yen (US$200) and the domestic price 78,000 yen (US$217) for an average of 72,778 yen (US$202). But this year storage costs were less, so the price for baleen oil can be considered about the same as last year's. For sperm oil last year's average export price was 64,389 yen (US$176) per ton and the domestic price was 75,000 yen (US$208) for an average of 67,554 yen (US$188) per ton. This year the over-all average sperm oil price was 57,000 yen (US$158), a considerable drop from last year. But whale meat has sold unexpectedly well, stocks are low, and the price is about 15 percent above last year's. Furthermore, this year's coastal whaling has been extremely good.

In the salmon fishery, despite the cut in the catch quota, total production is at about the same level as last year because of good fishing south of the Japan-Soviet treaty area. Mothership fleet operations took 30 days less than last year, the price of canned salmon is 12 percent higher than last year, and frozen and salted salmon, because of short supplies, are also about 10 percent higher than last year.

Tuna prices are not much different from last year's, but the East China Sea trawl fishery had a record catch of shrimp, and the prices of mackerel-like fishes were generally up. Sales of frozen products and sausages continued strong and are expected to top last year by about 20 percent. All of these favorable factors combined have brought good sales to all companies, and the hard times that were anticipated at the end of the Antarctic whaling season and after the Japan-Soviet fishery conference have completely failed to materialize. (Nikkan Suisan Tsushin, August 1, 1959.)

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Japanese North Pacific King Crab Factoryship Pack as of July 10, 1959

	Okhotsk (4 fleets)	Bristol Bay (1 fleet)
	(Cs. of 48 half-pound cans)	
July 1-10 pack	17,228	1,962
Total pack to July 10	216,903	70,000
1958 pack to July 10	188,565	1/ 59,850
Target pack	280,000	73,500

1/ Final on June 30.
Note: Data drom Japanese Fisheries Agency as given in newspaper Hokkai Suisan for July 18.

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Japan (Contd.):

KING CRAB PACK QUOTA IN BERING SEA FILLED:

The Japanese king crab factoryship fleet operating in the Bering Sea has canned its quota of king crab meat for this season, the Fisheries Agency announced early in August. The target pack established for the one fleet in the Bering Sea was 73,500 cases (48 6½ oz. cans). As of July 10, it had been reported that 70,000 cases had been packed. Last year the one fleet in the Bering Sea packed only 59,850 cases.

There are also 4 factoryship fleets operating in the Okhotsk Sea for king crab and the canned pack target for this season for those fleets is 280,000 cases. As of July 10, a total of 216,903 cases had been packed by those fleets.

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CANNED-FISH PET FOOD INDUSTRY:

Japanese exports of canned pet food (with fish as the principal ingredient) to the United States were expected to expand greatly this year. Shipments for the first half of 1959 totaled approximately 200,000 cases. About 80 percent of the canned pet food is made from skipjack. In July 1959 prices per case averaged 950 yen (US$2.64) f.o.b. Japan with not much fluctuation. Packers are concentrated in Shizuoka and northeastern Honshu, and they make the pet food as a byproduct to the canning of tuna. Although the packer's margin is slim, there is considerable interest in the business because of poor sales of canned flavored flake tuna in the Japanese market.

By far the greater part of the sales are direct to United States packers, although there is some selling of Japanese packers' brands. Beginning around February and March of this year, there was a conspicuous increase in sales by trading companies direct to supermarkets, and this has upset the market in the United States. According to the Japanese traders, the wholesale price in the United States, which was around $5.50 a case in the fall of 1958, had dropped to $4.50 in July 1959.

Canned fish pet food was first developed in Japan by a firm in Shimizu three years ago, and now nearly 40 firms in Shizuoka Prefecture are using fish to make canned pet food.

Shizuoka fish canners pack white meat and light meat canned tuna from albacore and skipjack and thereby earn for Japan about 10 billion yen worth of dollars (US$27.8 million) every year. The scraps and dark meat waste are packed as flakes for the domestic market. However, canning the tuna waste as pet food seems to be more remunerative and now about 60 percent of the tuna flake material is packed as pet food.

The canned pet food is packed in No. 2 tuna cans. The contents of the cans are less than for flakes for human consumption, there is no need to add soy sauce, and when skipjack is used as raw material the manufacture of pet food is about 20 percent more profitable than the manufacture of tuna flakes. Furthermore, whether the ultimate consumer is a cat or a human being, as an export product the canned pet food enjoys tax exemption and a rebate on the cost of the cans. This year's production in Shizuoka Prefecture will be about 600,000 cases, worth 600 million yen (US$1.7 million), and a United States importer who recently visited Shimizu stated that pet food orders could easily reach 1 million cases annually.

About a year ago a Tokyo pet dealer had the idea of introducing canned food for cats and dogs in that city, but in Japan the cats and dogs, like their masters, subsist mainly on rice, and they showed little interest in canned food, so the business did not prosper. Greater care is to be taken in the packing of canned pet food for export to the United States than is done in the case of canned fish for human consumption in Japan. (Nikkan Suisan Tsushin, July 26 and 31, 1959.)

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CANNED PET FOOD EXPORTS TO UNITED STATES CONTINUE AT HIGH RATE:

Japanese exports to the United States of canned pet food or animal food (with

Japan (Contd.):

fish as one of the principal ingredients) continued at a high rate, Shimizu area reports indicate. In June this year 33,730 cases were exported to the United States, substantially exceeding the expected exports of 30,000 cases. If exports continue at this rate, it is expected that 1959 exports will amount to 300,000 cases as compared with 200,000 cases in 1958. The current f.o.b. Japan price is reported at $2.90 a case. (Industrial News, July 23, 1959.)

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ADDITIONAL BERING SEA FISH-MEAL FACTORYSHIP TO BE LICENSED:

Domestic and foreign demand for fish meal as an additive to feed for domestic animals has recently been on the increase, and a number of large fishing companies in Japan have made application for permits to engage in factoryship operations in the Bering Sea. The Japanese Fisheries Agency is expected shortly to license some additional fleets.

At present two companies are each operating one fleet, with a total annual meal production (principally from flatfish) of 18,000 tons planned. If the Fisheries Agency issues licenses, next year there are expected to be three additional fleets. Each fleet would have a planned production of 8,000-10,000 metric tons.

According to the Fishery Agency's investigations, the annual world demand for fish meal is about 1.3 million tons, and the supply is about 200,000 tons short of that amount. In the case of Japan, almost all of the production is exported, and recently there arose a shortage to meet domestic demand. Therefore the Government is inclined to license additional production on the grounds that it is not likely to push the price down from the present level.

The question of conservation of the resource is a delicate one and the Fisheries Agency has stated that beginning this year full-scale studies will be started on the resources which supply the raw material for fish meal. (Nihon Keizai Shimbun, August 4, 1959.)

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FISH MEAL PLANT ORDERED FOR BERING SEA FACTORYSHIP OPERATION:

A Japanese fishing company recently ordered a fish-meal plant from Germany for its planned fish-meal factoryship operations in the Bering Sea next year. Importation of this plant will require 90 million yen (US$250,000) in foreign exchange, of which the Japanese firm paid down 27 million yen (US$75,000) when the order was placed. Importation and assembly of the plant in Japan will cost another 60 million yen (US$167,000), bringing the whole cost to 150 million yen (US$417,000). The plant, which will process 500 tons of fish a day, is scheduled to reach Yokohama from Hamburg around the middle of next March. (Nikkan Suisan Tsushin, August 1, 1959.)

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PACK QUOTA FOR CANNED MACKEREL-PIKE BY STYLE AND CAN SIZE:

The Japanese Export Canned Saury Producers' Association met July 21 and decided on the pack quota for canned saury or mackerel-pike by style of pack and can size for the 1959 production year (August-July 1960). It is planned to pack 60,000 cases of 4 dozen No. 4 cans in tomato sauce; 275,000 cases of tall No. 1 cans in brine; and 325,000 cases of 4 dozen No. 4 cans in brine; a total of 660,000 cases. Because inventories of old merchandise are excessive and sales are slow, it was decided not to produce any oval No. 1 cans, oval No. 3 cans, or tall No. 1 cans in tomato sauce, which have been the principal pack categories in the past. Selling prices will remain unchanged, but because the market conditions are unstable, the market development assessment (a fund for taking care of price fluctuations) was raised to 100 yen (about 28 U. S. cents) a case, double last year's assessment, so the packer's actual receipts will be lowered on the average by about 50 yen (14 U. S. cents) a case.

Japan (Contd.):

Plans for export sales in the 1959 export year are as follows (in cases): Egypt 170,000, Burma 150,000, Singapore and Malaya 48,000, Ceylon 175,000, New Guinea 110,000, West Africa 55,000, Philippines 252,000, other countries 45,000. Old stocks carried over from last year's total 360,000 cases; new production will be 660,000 cases. (Nikkan Suisan Tsushin, July 22, 1959.)

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JAPANESE FIRM TO EXPLORE FOR SHRIMP OFF MEXICAN WEST COAST:

A Japanese trading firm has entered into an agreement with a Mexican firm to explore for shrimp off the Mexican west coast. The Japanese No. 16 Myojin Maru (150 tons) and the No. 8 Hajime Maru (135 tons) were scheduled to sail for Mexico on August 10, 1959. Skilled personnel (7 men) from the Shimonoseki office of a Japanese fishing company were due to accompany the expedition. The Japanese company intends to enter the shrimp fishery, if its fishing ground surveys show that the enterprise looks promising. However, the company does not appear to be taking a very optimistic view until the results of exploration are known. (Nikkan Suisan Tsushin, July 23, 1959.)

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SHRIMP LANDINGS AND FOREIGN TRADE, 1954-1958:

Landings of shrimp in Japan in 1958 totaled 55,463 metric tons, or about 9 percent higher than the average landings of 50,273 tons for the 1954-1958 period. However, both exports and imports have increased sharply during the five years between 1954 and 1958. Exports of fresh and frozen shrimp were up elevenfold (from 289 tons to 3,484 tons) from 1954 to 1958. Imports increased from 69 tons to 4,159 tons in the same period.

Table 1 - Japanese Landings of Spiny Lobster and Shrimp, 1954-1958

Product	1958	1957	1956	1955	1954
	(Metric Tons)				
Spiny lobster	1,212	1,158	1,020	1,237	1,346
Shrimp:					
"Kuruma" prawn	2,784	2,051	2,306	2,561	2,355
Other shrimp	52,679	45,427	47,917	44,700	48,585
Total shrimp	55,463	47,478	50,223	47,261	50,940

The United States was Japan's principal customer for frozen shrimp and in 1958 imported 77.0 percent (2,682 tons) of the total Japanese exports of 3,484 tons. Between 1954 and 1957 the United States imported about 95 percent of the Japanese exports of frozen shrimp.

Table 2 - Japan's Exports and Imports of Shrimp, 1954-1958

	Fresh or Frozen	Dried or Salted	Canned	Total
	(1,000 Lbs.)			
Exports:				
1958:				
All Exports	3,484	904	42	4,430
To U. S.	2,682	233	12	2,927
1957:				
All Exports	2,630	949	39	3,618
To U. S.	2,525	190	31	2,746
1956:				
All Exports	2,417	1,006	59	3,482
To U. S.	2,368	219	31	2,618
1955:				
All Exports	865	1,031	1/	1,896
To U. S.	827	118	1/	945
1954:				
All Exports	289	1,387	1/	1,676
To U. S.	269	99	1/	368
Imports 3/:				
1958	4,159	53	2/	4,212
1957	3,269	131	2/	3,400
1956	45	1	1/	46
1955	-	132	1/	132
1954	69	-	1/	69

1/Not classified separately before 1956.
2/Less than 1,000 pounds.
3/Not classified as to country of origin.

The United States is also an important customer for Japanese dried or salted shrimp. United States imports of this product from Japan ranged from a low of 99 tons in 1954 to a high of 233 tons in 1958.

Libya

FISHERIES TRENDS, APRIL-JUNE 1959:

Tuna: In the Tripolitania area of Libya, the tuna-fishing season began under very inauspicious circumstances. By mid-April only 6 of the 10 companies engaged in this industry in 1958 were able or willing to resume operations. Most of the other firms found themselves unable to compete as increased production costs (mainly due to new labor and social insurance laws) compelled them to cease activities. At least one of the active companies had labor troubles when its fishermen went on strike, but the company's threat to close down completely soon resulted in a compromise.

It was unfortunate that four of the tuna processing firms ceased operations, because the tuna catch surpassed expectations. During the May-to-early-June period the companies operated off the western Tripolitania coast and although

Libya (Contd.):

the season was not over, they had caught about 12,000 tuna, weighing approximately 1,200 metric tons. Since mid-June the fishing has been concentrated off the eastern shores of the Province and the catch continued better than average.

Sponges: The sponge fishing season in Tripolitania continued on at a very low level as the Greek fishing fleet did not begin to make its annual appearance until the very end of the period. Only five Libyan firms were engaged in sponge fishing this year. By mid-June their combined catch totaled no more than 1,500 kilos (3,306 pounds). It was expected, however, that the arrival of the Greek vessels (about 60 were expected) would result in much greater production as they operate in deep water where the quantity of sponges obtained is much greater and the quality higher than those secured just offshore by the local firms.

In Cyrenaica the sponge fishing industry, once one of the principal industries of the Province, was virtually dead as far as the 1959 season was concerned. Unwilling to meet the terms of the Cyrenaica sponge monopoly (LŁ500, or about US$1,400 a license, 40 licenses minimum), Greek sponge fishermen lost interest in this fishery, at least for the present season. (United States Embassy dispatch from Tripoli, July 14, 1959.)

Malaya

JOINT JAPANESE-MALAYAN TUNA FISHING COMPANY FORMED:

Negotiations for the establishment of a joint tuna fishing enterprise by a large Japanese fishing company and a Malayan marine products company have been completed and papers were signed on July 6, 1959, at Penang. The new company is capitalized at 500,000 Malayan dollars (US$164,000), of which the Japanese side has put up 49 percent.

Operations will be started shortly with five 150-ton tuna boats. (Suisan Keizai Shimbun, July 8, 1959.)

Mexico

ENSENADA AREA FISHERY TRENDS, JULY 1959:

The Mexican Office of Fishery Inspection in Ensenada reports that the 1958/59 spiny lobster season (October to March) was exceptionally good. About 1,960,000 pounds of spiny lobster were landed as compared with average annual landings of 1,000,000 pounds.

The fish canneries in Ensenada, which have been complaining of lack of business for the past few years, are doing better. Two which have been idle are now working again. There are now ten canneries operating in the Ensenada area, the United States Consulate in Tijuana reported on July 10, 1959.

New Zealand

FISHERIES TRENDS, 1958:

Landings in 1958 of fish and shellfish in New Zealand of about 55.3 million pounds were down about 1 percent from the 55.8 million pounds landed in 1957. The lower demand for export fish, especially to Australia, contributed to a lower catch.

Spiny lobster landings in 1958 declined 12 percent to 9.8 million pounds from 11.1 million pounds in 1957. The 1958 landings of this product were close to 33.2 percent under the landings for 1956. The record catch of 183 humpback whales at Tory Channel Station in 1958 yielded 1,538 short tons of whale oil, 448 tons of whale meat, and 134 tons of bone meal. The station at Great Barrier Island did not operate during 1958, but will operate in 1959. The season so far in 1959 has been exceptionally good with more whales than available catchers.

Exports of frozen fish declined to about 5.3 million pounds in 1958 from 7.3 million pounds in 1957 and spiny lobster exports (mostly tails) dropped sharply to only 2.6 million pounds from 4.4 million pounds in 1957. Most of the tails are exported to the United States.

New Zealand (Contd.):

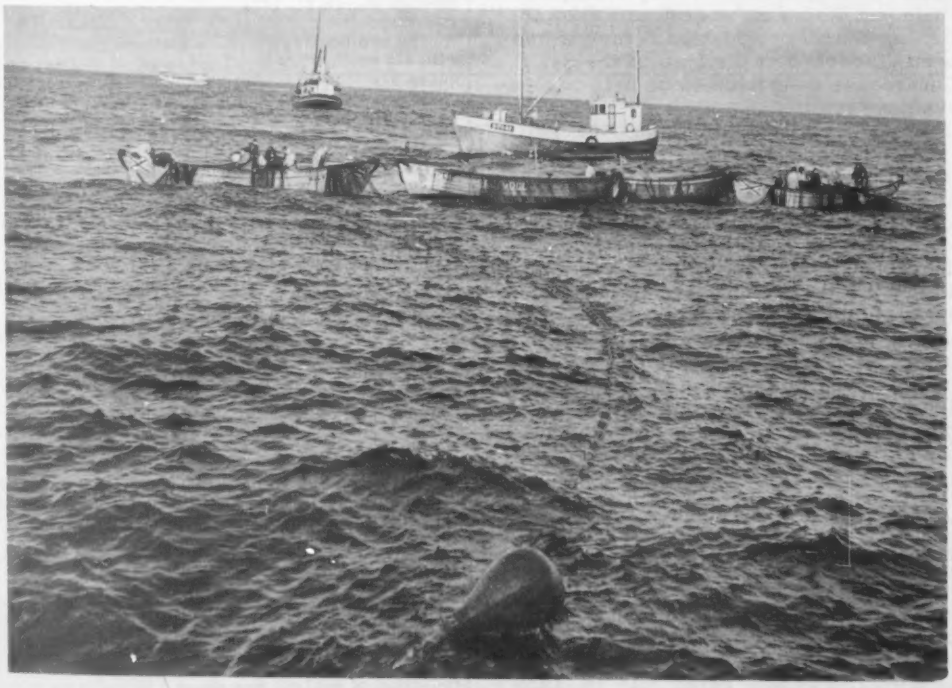
During 1958, regional committees, consisting of representatives of the wholesale, retail, and production side of the fish industry were set up in Auckland, Gisborne, Napier, Wellington, Otago, West Coast, and Nelson to assist and guide the Fishing Industry Advisory Council in the consideration of local problems. The question of licensing of the fishing industry has been under study and a report on this problem prepared by the Council is being examined by the Marine Department.

Norway

FISHING AND WHALING INDUSTRY TRENDS, JUNE 1959:

A total of 769,503 metric tons of fish was landed in Norway from January 1 to June 13, 1959, as compared to 765,611 and 1,183,144 tons during the same periods of 1958 and 1957, respectively. Most of the annual catch is landed during the first half of the year.

The fishermen's marketing organization (Norges Raafisklag) in North Norway and the dominant fish filleting and freezing concern (Norsk Frossenfisk A/L) are in a long and bitter dispute over fish prices. The Government recently ruled that the difference between the prices set by the marketing association for fish sold to the freezing industry and for similar fish sold to dryers and salters shall be substantially less than that heretofore in effect. The marketing association immediately renounced an agreement it had recently concluded with the freezing industry providing for somewhat lower prices during the summer months. The fish fillet and freezing concern has announced its intention to sue the fishermen's marketing organization for breach of contract.



On the herring fishing grounds off west coast of Norway. Large purse seine set around a submerged school of herring. Seine has been pursed and net is lifted into the mechanized purse-seine dories to concentrate the fish in the bag of the net.

Norway (Contd.):

The Ministry of Fisheries has submitted a report to the Norwegian Storting with proposals for improving profits in the fishing industry. These proposals are based on the recommendations of the Brofoss Committee and differ from them only in detail. The Ministry recommends, among other things, the replacement of many of the smaller boats with 65- to 85-foot vessels, the building of more large ocean-going trawlers, the use of more powerful engines, increased fisheries research, additional credit facilities for fishermen, and subsidies on tackle and equipment to take the place of fish-price supports.

Replying to a question in the Storting, the Foreign Minister stated on May 19, 1959, according to the press account, that the extension by the Faroe Islands of its fishing boundary would not adversely affect Norwegian fishing interests. He added that Norway would continue to take no unilateral action on the fishing boundary question before it had been discussed at the Law of the Sea Conference scheduled to be held in Geneva next year.

Following the meeting of the International Whaling Convention in London, which ended in a deadlock and resulted in Norway's withdrawal from the Convention, the Minister of Industry and Handicrafts was reported to have stated that Norway will continue to abide by the regulations of the Convention pertaining to the conservation of whale stocks and that toward this end the Government will later in the summer establish a national quota for the Norwegian expeditions. He is reported to have stated further that in the event any initiative is taken to hold further talks on the allocation of whale quotas among the whaling nations, Norway would promptly participate.

The last unsold stocks of whale oil from the Norwegian production during the 1958/59 Antarctic whaling season have been sold. (United States Embassy dispatch from Oslo, dated July 16, 1959.)

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MARINE OILS AND FISH MEAL PRODUCTION, FOREIGN TRADE, AND DISTRIBUTION, 1956-1959:

Marine Oil: PRODUCTION: Total production of marine oils by Norway declined from about 257,000 metric tons in 1957 to about 202,000 tons in 1958, and is expected to remain at roughly 200,000 tons in 1959. The forecast for 1959 is based on the final estimates of the Antarctic whaling expedition and the returns from the Norwegian winter herring fisheries (both of which are completed for 1959).

The production of Antarctic whale and sperm oil was lower by 15 percent in the 1957/1958 season. The nine Norwegian expeditions participating in the 1957/1958 whaling season produced 123,946 tons of whale oil and 20,751 tons of sperm oil. The Norwegian shore station at Husvik Harbor was not operated during 1958.

Preliminary results from the 1958/59 Antarctic whaling season indicate a further reduction of whale and sperm oil production. According to preliminary reports, the total Norwegian production of whale oil from the nine floating expeditions and the Norwegian shore station at Husvik Harbor is only 123,803 tons of whale oil and 14,904 tons of sperm oil.

The 1958/59 pelagic season started January 7 and ended on March 16, 1959, while the Norwegian shore station was in operation from October 1, 1958, through March 31, 1959.

The two Norwegian shore stations which operate with six catcher boats off the coast of Norway produced 672 tons of sperm oil and 612 tons of whale oil in 1958 as compared with 227 tons of sperm oil and 769 tons of whale oil in 1957. The two stations operated in the summer of 1959.

The production of herring oil in 1958 totaled only 34,000 tons in 1958 as compared with 17,424 tons in 1959 and 110,828 tons in the record year of 1956. The winter herring, which is the main basis for the Norwegian production of herring oil, arrived late in the season and, in addition, fishing was severely hampered by high winds. As a result, the total catch was only 3,712 million hectoliters (345,116 metric tons), or 43 percent of the catch in 1957, which also was a poor year.

The outlook for 1959, although slightly better than in 1958, is still not very promising.

The Ministry of Fisheries, which furnishes the most accurate estimates on fish-liver oil production, has estimated that total production of fish-liver oil in 1958 totaled about 16,500 tons, or about 18 percent more than in 1957. Preliminary reports indicate a further increase in the production of fish-liver oil in 1959.

The results from the 1958 sealing season were very good. The registered catch of seals was increased from 208,271 in 1957 to 260,819 in 1958. The total landed value of the catch increased from 12.5 million kroner (US$1.8 million) to 17.2 million kroner (US$2.4 million) and the estimated production of seal oil was about 5,500 tons as compared with about 4,700 tons in 1957.

Norway (Contd.):

Table 1 - Norway's Production of Marine Oils, 1956-1959

Commodity	1959 1/	1958	1957	1956
	(Metric Tons)			
Cold cleared cod-liver oil	12,000	11,900	10,300	12,400
Other fish-liver oils	5,000	4,600	3,700	4,500
Herring oil	43,000	34,000	67,424	110,828
Total fish oils	60,000	50,000	81,424	127,728
Seal oil	5,000	5,500	4,700	5,000
Sperm oil:				
Antarctic	14,904	20,751	16,874	22,569
Shore stations	400	672	227	469
Total sperm oil	14,304	21,423	17,101	23,038
Whale oil:				
Antarctic	123,803	123,946	153,167	121,898
Shore stations	600	612	769	649
Total whale oil	124,403	124,558	153,936	122,547
TOTAL MARINE OILS	203,707	201,981	257,161	278,213

1/ Forecast

Table 2 - Norway's Imports of Marine Oils, 1957-1958

Commodity	1958			1957		
	Metric Tons	1,000 Kr.	US$ 1,000	Metric Tons	1,000 Kr.	US$ 1,000
Whale oil, crude	2,326	3,798	532	708	921	129
Sperm & bottlenose oil, crude	589	731	102	1,527	2,624	367
Herring oil, crude	6,632	8,352	1,169	13,269	19,811	2,773
High-potency (vitamin A) marine-animal oils	919	5,610	785	1,070	6,466	905
Cod-liver oil	-	-	1/	977	1,811	254
Veterinary fish-liver oil	5	3	-	134	268	38
Industrial fish-liver oil	362	512	72	746	1,338	187
Mixed fish-liver oil	4,186	4,768	668	902	1,198	168
Residual fish-liver oil	694	538	75	1,214	1,297	182
Total	15,713	24,312	3,403	20,547	35,734	5,003

1/ Less than US$500.
Note: Values converted at rate of 7.143 Kr. = US$1.

Table 3 - Norway's Exports of Marine Oils, 1957-1958

Commodity	1958			1957		
	Metric Tons	1,000 Kr.	US$ 1,000	Metric Tons	1,000 Kr.	US$ 1,000
Whale oil, crude 1/	95,099	135,911	19,027	106,215	175,709	24,599
Sperm & bottlenose oil	14,353	19,719	2,761	9,771	15,940	2,232
Herring oil, crude	240	307	43	566	901	126
Seal oil, crude	4,144	5,786	810	5,136	8,145	1,140
Fish-liver oils	17,763	34,429	4,820	16,348	35,998	5,040
Refined marine oils, edible	1,661	3,330	466	2,100	4,539	635
Refined marine oils, other	1,252	1,946	272	2,569	4,847	679
Marine-animal oils, polymerized, oxidized, etc., edible	592	1,134	159	948	1,951	273
Hardened fats from marine-animal oils, edible	39,469	77,735	10,883	49,786	111,361	15,590
Hardened fats from marine-animal oils, for technical use	7,503	12,657	1,772	10,157	19,325	2,705
Fatty acids from marine oils	4,011	6,674	934	4,900	7,726	1,082
Products from sperm & bottlenose oils	4,221	10,126	1,418	4,322	10,446	1,462
Other products	2,238	4,465	625	1,395	3,056	428
Total	192,546	314,219	43,990	214,213	399,944	55,991

1/ Including sales made directly from the Antarctic.

Table 4 - Distribution of Norwegian-Produced Antarctic Whale Oil, 1957-1958

Country	1958	1957
	(Long Tons)	
Norway	31,677	54,255
West Germany	25,012	23,589
United Kingdom	30,573	23,052
Sweden	3,537	1,763
Denmark	4,993	10,083
France	12,121	11,332
Netherlands	12,460	23,230
Belgium-Luxemburg	2,120	3,645
Total	122,493	151,447

Source: "Economic Survey 1958."

Table 5 - Norway's Supply and Distribution of Marine Oils, 1956-1958

	1958	1957 1/	1956 1/
	(Metric Tons)		
Stocks, January 1	72,019	68,410	51,417
Production	201,981	257,161	278,213
Imports	15,713	20,547	19,180
Total supply	289,713	346,118	348,810
Exports	192,546	214,213	202,381
Consumption	52,276	59,886	78,019
Stocks, December 31	44,891	72,019	68,410
Total distribution	289,713	346,118	348,810

1/ Revised.

Norway (Contd.):

Table 6 - Norway's Stocks of Marine Oils, 1954-1958 (as of December 31)

Product	1958	1957	1956	1955	1954
	(Metric Tons)				
Crude herring oil & whale oil	44,580	71,764	67,981	48,237	47,814
Other marine oil	311	355	439	3,180	1,469
Total	44,891	72,019	68,410	51,417	49,283

low the price obtained for the oil produced during the 1956/57 season. The prices varied greatly--about 2,000 tons were sold at £80 (US$224.80) per long ton; 5,000 long tons at £78 £78 15s.(US$219.39); 500 long tons at £70 (US$196.70; 45,991 long tons at £77 10s. (US$216.42); and 68,500 long tons were sold at £67 10s. (US$188.41). The total value of the 1957/58 whale oil production was about 176 million kroner (US$24.6 million) as compared with 256 million kroner (US$35.8 million) in 1956/57.

Table 7 - Norway's Exports of Fish Meal, 1957-1958

Country of Destination	1958 Metric Tons	1958 1,000 Kr.	1958 US$ 1,000	1957 Metric Tons	1957 1,000 Kr.	1957 US$ 1,000
United States	116	118	17	3,642	3,681	515
Italy	3,341	3,785	530	2,529	2,992	419
Switzerland	9,878	10,001	1,400	7,921	8,055	1,128
Sweden	7,834	8,878	1,243	9,043	10,884	1,524
West Germany	13,972	15,135	2,119	20,825	23,992	3,359
Austria	3,706	3,924	549	2,796	3,120	437
Belgium-Luxemburg	9,578	10,901	1,526	9,695	11,544	1,616
Denmark	3,860	3,802	532	4,156	4,204	589
France	15,864	18,153	2,541	15,038	17,836	2,497
Netherlands	11,329	13,096	1,833	17,491	20,850	2,919
United Kingdom	18,394	21,471	3,006	32,132	38,258	5,356
Israel	1,237	1,478	207	3,469	3,958	558
Others	6,855	7,998	1,120	5,961	7,239	1,013
Total	1/ 105,964	118,738	16,623	2/ 134,699	156,613	21,925

1/ Of which 89,437 tons valued at 103 million kroner (US$14.4 million) were herring meal.
2/ Of which 120,468 tons, valued at 142.9 million kroner (US$20 million), were herring meal.

FOREIGN TRADE: Mainly as a result of a substantial reduction in imports of herring oil, total Norwegian imports of all marine oils were reduced from 20,547 tons in 1957 to 15,713 tons in 1958.

Exports of crude and processed marine animal oils were reduced from 214,213 tons in 1957 to 192,546 tons in 1958.

Fish-liver oil exports in 1958 increased somewhat over 1957 exports mainly as a result of a substantial increase in sales to Czechoslovakia, which purchased about 5,100 tons, or close to 30 percent of total Norwegian exports of fish-liver oils.

Exports of crude herring oil were down to 240 tons in 1958 as compared with 566 tons in 1957 and 1,839 tons in 1956 as a result of the low herring oil production. Seal oil exports were 4,144 tons in 1958, or about 20 percent less than in 1957. More than 95 percent of total seal oil exports were sold to West Germany.

Total exports of hardened edible marine oils were 39,500 tons in 1958 as compared with 49,800 tons in 1957. The U.S.S.R. was the main purchaser with 27,000 tons, or about 68 percent of the total exports. In 1957, U.S.S.R. imported 33,000 tons or about 66 percent of Norway's total exports of hardened edible marine oils. As in previous trade agreements between Norway and U.S.S.R., some 30,000 tons of hardened marine fats were included in the agreement for 1959.

DISTRIBUTION AND PRICES: Norwegian production of whale and sperm oil from the 1957/58 Antarctic season was sold, as usual, through the Norwegian whaling companies' common marketing pool.

The average price for whale oil in 1958 was £72 (US$202.32) per long ton, or about 16 percent be-

According to reports, the Norwegian whaling companies have sold about 91,500 long tons of this year's production to a large British firm and to the Norwegian whale oil hardening plant at £72 10s. (US$202.46) per long ton. In addition, about 9,500 long tons have been sold at prices varying between £74 (US$207.94) and £75 (US$210.75). Prices show a slight improvement over the 1958 level.

Sperm oil prices were substantially reduced in 1958 (average price was £65 (US$182.65 per long ton) or about 22 percent below the prices obtained for the 1956/57 production. Because the sperm oil production was higher in 1957/58 than during 1956/57, the total value declined only from 28 million kroner (US$3.9 million) to 27 million kroner (US$3.8 million).

STOCKS: Stocks of marine oils decreased by about 38 percent from 1957 and totaled 44,891 tons at the end of 1958.

CONSUMPTION: According to estimates on the basis of available statistics, the Norwegian consumption of marine oils and products was reduced from about 60,000 tons in 1957 to about 52,300 tons in 1958.

Fish Meal: PRODUCTION: Norway's production of fish meal dropped from about 175,000 tons in 1957 to about 95,000 tons in 1958, as a result of the poor herring catch in 1958. Results from the 1959 herring season indicate that the production of herring and other fish meal will increase somewhat and may reach 115,000 or 120,000 tons.

EXPORTS: Fish meal exports dropped from 134,699 tons in 1957 to 105,964 tons in 1958. The United Kingdom, France, West Germany, and the Netherlands provide the best markets for Norwegian fish meal.

Norway (Contd.):

The average export price for fish meal dropped from 1,162 kroner (US$162.68) per ton in 1957 to about 1,123 kroner (US$157.22) per ton in 1958.

Pakistan

FISHERIES DEVELOPMENT PROGRAM EXPECTED TO STIMULATE SHRIMP EXPORTS:

Six private trawlers and more than 50 boats fitted with marine Diesel engines are expected to join the present small fishing fleet of 2 modern fishing trawlers and 75 fishing boats during the next fishing season to stimulate Pakistan's frozen and canned shrimp export trade. During four months of operations (December 1958-March 1959), two trawlers which are operated by the Fisheries Department caught 225,232 pounds of shrimp and fish valued at Rs. 125,000 ($26,250).

Apart from the Government fisheries programs, the Government of Pakistan has recently sanctioned the following

Small fish and shrimp are unloaded from the boat and carried ashore in mat baskets at the fishing village of Ibrahim Hydri, West Pakistan, about 11 miles from Karachi.

fisheries development program under the private sector for implementation within the course of a year at the total cost of about Rs. 12,000,000 ($2,520,000). Three-fourths of this sum will be available in foreign exchange.

The development program includes the following:

Production: Karachi: carrier vessels 2; mechanized fishing boats 8; shrimp trawler 1. Makran Coast including Gwadur; carrier vessels 1; mechanized fishing boats 4; shrimp trawler 1. West Pakistan: insulated vans 4; insulated boxes 1,000. East Pakistan: fishing launches and boats 4 (Khulna coastal Area 2, Chittagong & Cox's Bazar Area 2); carrier vessels 2 (Khulna Area 1, Chittagong 1); insulated vans 4; shrimp trawler 2 (Khulna Area 1, Chittagong 1); cold storages 4 (one each at Sylhet, Khulna, Rajbari, and Chittagong); ice plants 4 (one each at Sylhet, Khulna, Khopupara, and Goalando).

Fish Industries: Makran Coast: shrimp freezing plants 2, canning plants 2, and fish meal plants 2. East Pakistan: shrimp freezing plants 2, canning plants 2, and fish meal plant 1.

The Pakistan Government will give reasonable assistance to private parties who may wish to take advantage of and participate in this program. Cooperative Societies will be given preferential treatment (Pakistan Affairs, July 1, 1959).

Peru

EXPORTS OF SELECTED MARINE PRODUCTS, JANUARY-MARCH 1958 and 1959:

During the first quarter of this year Peru's exports of selected marine products were up sharply from the same period in 1958. Exports of fish meal in January-March this year of 51,058 metric tons were more than double the

Peruvian Exports of Principal Marine Products, January-March, 1958 & 1959

Product	First Quarter	
	1959	1958
	. . . (Metric Tons) . . .	
Canned bonito. .	3,540	2,884
Fish meal	51,058	24,492
Tuna, frozen . .	2,976	1,401
Skipjack, frozen	930	640
Sperm oil	3,749	2,790

24,492 tons exported in the same months of last year. The f.o.b. value of fish meal

Peru (Contd.):

exports for the same period rose about 110.7 percent or from US$2.8 million in 1959.

At the present time there are about 70 fish-meal reduction plants in Peru and further expansion of this industry is expected to raise the production to 180,000 metric tons yearly. Fish-meal consumption in Peru is about 350 tons a month, mostly as a supplement for poultry and hog feeds. The balance of the production is finding a ready market in Europe and the United States.

Fish-meal production in 1958 was estimated at 112,000 metric tons, almost double the production in 1957.

Portugal

CANNED FISH EXPORTS, JANUARY-APRIL 1959:

Exports of canned fish by Portugal during January-April 1959 amounted to 21,755 metric tons (1,201,000 cases), valued at US$11.2 million, as compared with 17,875 tons, valued at US$10.0 million, for the same period in 1958. Sardines in olive oil exported during the first 4 months of 1959 amounted to 15,737 tons, valued at US$7.8 million.

Portuguese Canned Fish Exports, January-April 1959

Products	January-April 1959	
	Metric Tons	US$ 1,000
Sardines in olive oil	15,737	7,777
Sardines & sardinelike fish in brine	673	136
Tuna & tunalike fish in olive oil	772	558
Anchovy fillets	2,277	1,597
Mackerel in olive oil	1,519	746
Other fish	777	427
Total	21,755	11,241

During January-April 1959, the leading canned fish buyer was Germany with 4,913 tons (valued at US$2.4 million), followed by Italy with 2,880 tons (valued at US$1.5 million), the United States with 2,049 tons (valued at US$1.5 million), Belgium-Luxembourg with 1,775 tons (valued at US$867,000), and Great Britain with 1,736 tons (valued at US$828,000). Exports to the United States included 1,037 tons of anchovies, 49 tons of tuna, 919 tons of sardines, and 19 tons of mackerel. (Conservas de Peixe, June 1959).

* * * * *

CANNED FISH PACK, JANUARY-APRIL 1959:

The total pack of canned fish for January-April 1959 amounted to 5,175 metric tons as compared with 5,424 tons for the same period in 1958. Canned sardines in oil (2,013 tons) accounted for 38.9 percent of the total pack in the first four months of 1959, lower by 30.0 percent than the pack of 2,876 tons for the same period of 1958, the June 1959 Conservas de Peixe reports.

Portuguese Canned Fish Pack, January-April 1959

Product	Net Weight	Cases
	Metric Tons	US$ 1,000
In Olive Oil:		
Sardines	2,013	106
Sardinelike fish	5	-
Anchovy fillets	2,387	238
Tuna	341	12
Mackerel	3	-
Other Species	426	22
Total	5,175	378

* * * * *

FISHERIES TRENDS, JANUARY-APRIL 1959:

Sardine Fishing: During January-April 1959, the Portuguese fishing fleet landed 5,778 metric tons of sardines (valued at US$554,817 ex-vessel or about US$96 a ton).

A total of 1,706 tons of sardines (valued at US$210,052) was landed in April 1959, the bulk being purchased for the local fresh fish market. Very little was canned or salted.

Other Fishing: The January-April 1959 landings of fish other than sardines were principally 8,084 tons of chinchards (value US$397,530). (Conservas de Peixe, June 1959.)

South-West Africa

PILCHARD-MAASBANKER CATCH QUOTA INCREASED FOR 1959:

For six years, from 1953, the pelagic shoal fish (mostly pilchards) quota for South-West Africa's Walvis Bay area has been fixed and maintained at a steady 250,000 short tons a year. From 1959, however, the annual quota is to be raised slightly from 250,000 to 260,000 tons. During the 1959 season only, the six processing factories at Walvis Bay have been granted an additional quota of 40,000 tons. This raises the pilchard-maasbanker quota in 1959 to 300,000 tons.

The Head of the Fisheries Department said that this increase is a practical measure to include a growing catch of maasbanker or jack mackerel in the quota. Although the Walvis Bay catch consists almost entirely of pilchards, maasbanker do occasionally appear among the fish landed. Two or three years ago those fish accounted for only about 1,000 tons of total landings, but the quantity increased to some 6,000 tons last year. The addition to the quota will allow for this increase and also extend the ceiling to both types of pelagic shoal fish.

The first pilchards caught this season had been brought in about the middle of February. But until the end of March the catch and the condition of the fish were very poor and most of the factories and boats waited for an improvement. This came during April and the season is now well under way. (The South African Shipping News and Fishing Industry Review, May 1959.)

Spain

NORWEGIAN PROPOSAL FOR TUNA FISHING OPERATION OUT OF SPANISH PORT REJECTED:

A Norwegian fishery company's proposal to set up tuna fishing operations using Norwegian fishing vessels based at the port of Ceuta, Spain, was rejected at a recent meeting of the Permanent Commission of the Economic Section of Spain's National Fisheries Syndicate.

The Norwegian proposal was considered as very important by the Commission, especially in view of the harm caused to Spain's export market in Italy by Japanese competition with Atlantic tuna. The Commission decided that the establishment of a Norwegian tuna fishing base at Ceuta might hinder the economic progress of Spain's tuna fishing industry. (Boletin de Informacion, no. 9, June 1959, Sindicato Nacional de la Pesca, Madrid, Spain.)

Sweden

MARINE OILS AND FISH MEAL--PRODUCTION, FOREIGN TRADE, SUPPLY, AND PRICES, 1957-1959:

Supply: Edible oils derived from fish and whales (51,561 metric tons) made up about 30 percent of Sweden's 1957-1959 average annual supply of all edible vegetable and animal oils and fat (169,756 metric tons). Edible marine oils (used largely for the manufacture of oleomargarine) are practically all imported. Other marine oils (inedible whale and fish oils and fish-liver oils) are primarily of domestic origin.

Imports: During 1958, a total of 26,697 tons of edible whale and fish oil were imported as compared with 41,486 tons in 1957. Inedible whale and fish oil imports dropped from 284 tons in 1957 to 232 tons in 1958; fish-liver oil imports of 1,257 tons in 1958 were up 106 tons from 1957.

Exports: Exports of marine oils by Sweden are largely inedible whale oil. In 1958, 1,788 tons of inedible whale oil were exported, 105 tons less than 1957 exports of 1,893 tons. Only very small quantities of fish-liver oils are exported.

Fish Meal: Sweden's supply of whale and fish meal averaged annually about 17,000 tons for the 1957-1959 period and was made up of 2,500 tons produced in Sweden and the balance of imported fish meal. In both 1958 and 1957 Nor-

Sweden (Contd.):

Table 1 - Sweden's Supply and Distribution of Marine Oils, 1957-1959

Type	Opening Stocks, Jan. 1	Production	Imports	Total Supply	Exports	Domestic Consumption	Ending Stocks, Dec. 31
			(Metric Tons)				
1959 1/:							
Whale & fish oils, edible	19,900	-	30,000	49,900	-	27,900	22,000
Whale & fish oils, inedible	2/	3,200	300	3,700	1,800	1,900	2/
Fish-liver oil, inedible	400	2,400	1,200	4,000	10	3,590	400
1958:							
Whale & fish oils, edible	23,400	-	26,696	50,096	-	30,196	19,900
Whale & fish oils, inedible	2/	3,200	229	3,429	1,788	1,641	2/
Fish-liver oil, inedible	400	2,300	1,256	3,956	7	3,549	400
1957:							
Whale & fish oils, edible	13,200	-	41,486	54,686	-	31,286	23,400
Whale & fish oils, inedible	2/	3,000	285	3,285	1,894	1,391	2/
Fish-liver oil, inedible	400	2,400	1,152	3,952	110	3,442	400

1/ Estimated. 2/ Included with edible.

Table 2 - Sweden's Supply and Distribution of Whale and Fish Meal, 1957-1959 1/

Whale and Fish Meal	Opening Stocks, Jan. 1	Production	Imports	Total Supply	Exports	Domestic Consumption	Ending Stocks, Dec. 31
			(Metric Tons)				
1959	2/	2,500	15,000	17,500	-	17,500	2/
1958	2/	2,500	13,296	15,796	-	15,796	2/
1957	2/	2,500	15,480	17,980	-	17,980	2/

1/ Estimated. 2/ Unavailable.

Table 3 - Sweden's Imports of Marine Oils by Country of Origin, 1957-1958

Country	Fish-Liver Oil		Edible Whale Oil		Inedible Whale Oil	
	1958	1957	1958	1957	1958	1957
			(Metric Tons)			
Norway	1,254	1,074	3,685	2,995	184	235
Denmark	3	20	7,477	5,483	40	21
West Germany	-	15	9,365	9,352	7	28
Argentina	-	-	3,358	-	-	-
Australia	-	-	1,112	1,936	-	-
United Kingdom	-	-	-	514	-	-
Japan	-	3	-	4,973	-	-
Iceland	-	39	1,700	4,825	-	-
United States	-		-	11,408	1	-
Total	1,257	1,151	26,697	41,486	232	284

Table 4 - Sweden's Exports of Marine Oils by Country of Destination, 1957-1958

Country	Fish-Liver Oil		Inedible Whale Oil	
	1958	1957	1958	1957
		(Metric Tons)		
West Germany	7	110	230	292
Norway	-	-	1,058	947
Denmark	-	-	477	632
Austria	-	-	20	20
Other	-	-	3	2
Total	7	110	1,788	1,893

Table 5 - Sweden's Imports of Fish Meal by Country of Origin, 1957-1958

Country	1958	1957
	(Metric Tons)	
Denmark	531	504
Iceland	3,080	4,024
Norway	7,860	8,514
Total	11,471	13,042

way was the principal supplier of fish meal to Sweden, followed by Iceland and Denmark.

Import and Regulation Taxes: Although all types of oil seed, fats and oils, oil cakes and meal may enter Sweden free of duty, import and regulation taxes are levied at changing rates on those products. In lieu of tariffs, an import tax of 39 kroner per 100 kilograms (about 3.4 U. S. cents a pound) except for stearine which is 46.35 kroner per 100 kilograms (4.1 U. S. cents a pound) is levied. The regulation tax is about 50 kroner per 100 kilograms (about 4.8 U. S. cents a pound). The purpose of the import and regulation taxes is to protect the domestic butter industry and the producers of oil seeds. Regulation taxes are also applied to fats and oils derived from seed produced in Sweden. Products of the food industries containing fats will also be subject to import and regulation taxes on the basis of the fat content. But the Swedish processors of fats and oils for soap, paints, and other industrial

Sweden (Contd.):

products received rebates for import and regulation taxes.

Table 6 - Wholesale Prices 1/ of Marine Oils as of April 1, 1959

Product	Kroner Per Kilogram	US$ Per Metric Ton
Whale oil, hydrogenated, raw	2.30	443.90
Whale oil, hydrogenated, refined . .	2.44	470.92
Whale oil fatty acids. . . .	1.55	299.15
Whale oil fatty acids . . . distilled & hydrogenated .	1.75	337.75

1/ Prices are in metric-ton lots for delivery in tank cars c.i.f buyers' nearest port and include import and regulation taxes at 0.89 kroner per kilogram (7.8 U. S. cents a pound).

Effective September 1, 1959, a modified price and market program will become effective. The principal change will be that no limit will be set for the import tax. This program will be in effect for six years.

Trinidad

JAPANESE TRAWLER TO EXPLORE FOR SHRIMP OFF COAST:

Early in July 1959, the Japanese vessel Genei Maru (180 tons), owned by a Japanese fishery firm and jointly sponsored by two other firms, sailed for Trinidad. It was expected that when the vessel arrived at its Trinidad base, it would trawl for shrimp for about two months in order to determine whether or not it would be economically worthwhile.

Uganda

LAKE FISHERIES THRIVE DESPITE MASS MORTALITY DISASTERS:

Despite natural disasters which kill vast numbers of fish, the Uganda Lakes are now supporting a thriving commercial fishery, reports a fisheries biologist in the California Department of Fish and Game who has just returned from an assignment in Uganda on behalf of the Food and Agriculture Organization (FAO), Rome, Italy.

"I think, though, that the commercial fish catch at Lake George is now near to the maximum that can be maintained without injury to the stocks," the biologist reports. "Last year, for example, some 5,000,000 tilapia were taken by the fishermen. They also took, of course, great quantities of other commercial species, such as catfish."

The California biologist, who continued the work of another FAO expert, has been engaged in trying to find out how much the Uganda lake fisheries can be exploited. He has been doing this through tagging and experimental fishing with various kinds of nets.

In 1958 under FAO a United States marine biologist with a native team of nine assistants evaluated the fisheries resources of Lake George, Uganda. Nets were tied systematically at representative spots in the lake. Here one of the gill nets is being pulled into the boat. The fish caught were sorted by species, counted, and weighed, which made it possible to make an estimate of the fish resources of the lake.

"I think we have reached the stage where, by using the Beverton-Holt method of stock assessment, we can determine the extent to which these lakes can be fished without damage to the stocks," points out the biologist. "But before we can arrive at a conclusion, the data we have gathered must be thoroughly analyzed. The answer will show whether or not my suspicion that the present rate of fishing is near the maximum is correct."

Referring to the extensive mortality of fish due to natural phenomena, he

Uganda (Contd.):

explained that such disasters follow a period of hot weather and take place in water which is sheltered from the wind. The area in Lake George where these disasters take place lies under the lee of a high escarpment. The water is protected from the wind and during hot weather the growth of algae builds up, then perhaps just before dawn when oxygen demand is highest, a violent thunderstorm breaks which stirs up the algae and the bottom sediment. The algae absorb the oxygen in the water, which has become thick and muddy, and the fish are suffocated. It was estimated that some 450,000 tilapia were killed the last time this phenomenon took place. Unfortunately, the disaster seems to strike the most mature of the fish and thousands of tilapia weighing as much as $1\frac{3}{4}$ pounds were killed.

The fishermen on the Lake are able to reap a good harvest of catfish when a natural mass mortality of tilapia occurs since the tilapia do not rise until they are spoiling. The first intimation of the last disaster was when the fishermen landed ten times as many catfish as they normally do. The day of the disaster they took, for instance, 2,700 catfish to the fishing station and probably they collected thousands more for their own consumption while, in addition, many thousands of other catfish must have died at the time.

The interesting point about these disasters, which apparently occur every year, perhaps more than once a year, is that they do not appear to affect the viability of the stocks. Indded, in the days following the last disaster more fish were caught in the gill nets and then, about a week later, the catch reverted to normal.

Union of South Africa

UNION AND SOUTH-WEST AFRICA PILCHARD-MAASBANKER FISHERY TRENDS, JULY 1959:

Both the Union of South Africa and South-West Africa are reported to be having a very successful pelagic (mostly pilchards, maasbanker or jack mackerel, or mackerel) fishing season this year. Landings from the pilchard-maasbanker fishery in the Union as of June 30, 1959, amounted to 221,646 metric tons. In addition, 36,425 tons of mackerel had been landed. The 250,000-ton annual quota for pilchards and maasbanker in the Union is expected to be filled long before August 31 and the season is expected to be declared ended by Union fishery officials by the end of August as was the case in 1958.

The South-West African Administration announced about the middle of July that the pilchard-maasbanker quota for this year would be 300,000 tons, an increase of 50,000 tons over 1958. There seems to be little doubt that this increased catch quota can be attained this year. The decision to raise the South-West Africa quota this year was attributed to increases in the proportion of maasbankers in the combined pilchard-maasbanker catch plus an improvement in the size and age of the pilchards in the catches of this species this year, and a desire to meet increasing competition from the Peruvian fish meal in world markets. Production of fish meal by Peru is expected to increase sharply in 1959. In 1958, South-West Africa produced 46,200 tons of fish meal, according to a dispatch of July 24, from the United States Consulate in Cape Town.

U.S.S.R.

MORE FACTORY TRAWLERS FROM WEST GERMANY UNDER CONSIDERATION:

The Soviet Union expressed interest to West German authorities for an additional 16 to 18 large factory trawlers, according to Dansk Fiskeritidende (July 3, 1959), a Danish fishery trade periodical. It is reported from Bonn that such a large order would be divided among a number of shipyards if the Russian desires for credit and financing (involving a postponement of payment for 5 to 7 years) could be met. West Germany's largest shipyard built 24 trawlers of the

U.S.S.R. (Contd.):

"Pushkin" type, each measuring 2,450 gross tons, for Russia in 1956 and 1957.

United Kingdom

BRITISH FIRM COMPETES WITH U. S. BUYERS FOR AUSTRALIAN SUPPLIES OF SPINY LOBSTER TAILS:

A large Grimsby, England, fishing and marketing firm has entered the Western Australia market to buy spiny lobster tails in competition with United States buyers. The Grimsby firm, which requires large quantities of spiny lobster tails for marketing in England, has also purchased an established Australian company. The former owner of the Australian firm, who is now a director of the British firm, was in Perth, Australia, in June to negotiate the purchase of spiny lobster tails. The director stated that a new market had been opened in Britain for spiny lobsters and large purchases were being negotiated. He also stated that negotiations were started to sell British frozen fish in West Australia. At present West Australia does not permit the sale of 14-oz. packages of frozen fish, which are standard in England. The help of the British Trade Commissioner's office in Perth is being sought to lift the restriction.

* * * * *

FISHERY LOANS INTEREST RATES LOWERED:

The British White Fish Authority rates of interest were changed on loans as of June 10, 1959. The new rates do not apply, however, where the final installment of a loan or interim installments in current cases were paid by the Authority before June 10, 1959. The other terms and conditions of the Authority's arrangements for loans are unchanged.

The new rates are: on loans for not more than 5 years, $4\frac{3}{4}$ percent; on loans for more than 5 years but not more than 10 years, 5 percent; on loans for more than 10 years but not more than 15 years, $5\frac{5}{8}$ percent; and on loans for more than 15 years, $5\frac{7}{8}$ percent.

The Authority's loans are connected with the building of new fishing vessels of not more than 140 feet; the purchase, in certain circumstances, of new engines and nets and gear for inshore vessels; the construction and equipment of processing plants; and the formation and development of cooperative organizations. (Fish Trades Gazette, June 20, 1959.)

Venezuela

JAPANESE TUNA VESSELS BEGIN FISHING FOR VENEZUELAN FIRM:

Two Japanese tuna long-liners (the No. 3 and No. 5 Boso Marus, 87-gross-ton boats) sailed from Japan in May under a joint operating agreement between the Chiba Prefecture Fisheries Promotion Company and Venezuelan interests. The new firm in Venezuela will operate a cannery and the two Japanese vessels will supply the raw tuna.

The vessels are now reported to have arrived in Venezuela and begun fishing out of Cumana. The joint enterprise is capitalized at 122 million yen (US$339,000), of which the Japanese partners have put up 49.7 million yen (US$138,000). The company will engage principally in tuna fishing, with a planned annual production of about 140 million yen (US$389,000). (Suisan Keizai Shimbun, July 7, 1959.)

Viet-Nam

BIDS FOR FISH COLD STORAGE AND ICE-MAKING PLANTS REQUESTED:

The Viet-Nam Central Purchasing Agency has called for bids on providing eight fish storage plants, each capable of making 10 metric tons of ice per day and storing 22 short tons of fish. These are to be constructed as part of fish distribution facilities, including landing stages and market facilities, at Go Cong, Cap St. Jacques, Ham Tan, Phan Thiet, Nha Trang, Tuy Hoa, Qui Nhon, and Tourane (Da Nang).

It is expected that all of the installations (a United States Overseas Mission

Viet-Nam (Contd.):

project) will be completed early in 1960. When the installations are completed, they should give considerable aid to commercial fishing in this country. Estimated cost, including the expenses of an engineer to oversee construction and initial operation of the ice plants, is expected to be in the neighborhood of US$410,000, the United States Embassy in Saigon reported on August 6, 1959.

FISH AND EGGS - A GOOD COMBINATION

The home economists of the Department's Bureau of Commercial Fisheries have developed these special kitchen-tested recipes, combining fish and eggs:

BAKED FILLETS WITH PUFFY CHEESE SAUCE

- 2 pounds fillets, fresh or frozen
- ½ cup mayonnaise or salad dressing
- 1 tablespoon chopped sweet pickle or pickle relish
- ¼ cup grated cheese
- 2 egg yolks, beaten
- 2 egg whites, beaten

Thaw frozen fillets. Cut into serving-size portions. Place in a single layer in a well-greased baking pan, 13 x 8 x 2 inches. Combine mayonnaise, sweet pickle, cheese, and egg yolk. Fold in egg white. Cover fish with the sauce. Bake in a moderate oven, 350° F., for 30 minutes or until fish flakes easily when tested with a fork and the sauce is brown. Serves 6.

SCRAMBLED CRAB AND EGGS

- 1 pound crab meat
- ¼ cup chopped bacon
- ¼ cup chopped onion
- 4 eggs, beaten
- ¼ cup milk
- ¾ teaspoon salt
- Dash pepper
- Toast points

Remove any shell or cartilage from crab meat. Fry bacon until lightly brown. Add onion and cook until tender. Combine eggs, milk, seasonings, and crab meat. Add to onion mixture and cook until eggs are firm, stirring occasionally. Serve on toast points. Serves 6.

TUNA SOUFFLE

- 1 can (6½ or 7 ounces) tuna
- ¼ cup butter or other fat
- ¼ cup flour
- ½ teaspoon salt
- Dash pepper
- 1 cup milk
- 1 teaspoon Worcestershire sauce
- ½ cup grated cheese
- 6 egg yolks, beaten
- 6 egg whites, beaten

Drain tuna. Flake. Melt butter; blend in flour and seasonings. Add milk gradually and cook until thick and smooth, stirring constantly. Add Worcestershire sauce, cheese, and tuna; continue heating until cheese melts. Stir a little of the hot sauce into egg yolk; add to remaining sauce, stirring constantly. Fold into egg white. Pour into a well-greased, 2-quart casserole. Bake in a moderate oven, 350° F., for 45 minutes or until souffle is firm in the center. Serves 6.

FEDERAL ACTIONS

Committee for Reciprocity Information

UNITED STATES AND CUBA TO RENEGOTIATE TARIFFS ON FISHERY ITEMS:

The United States and Cuba are preparing to renegotiate a number of tariff rates applicable to imports into Cuba. Among these imports are the following fishery commodities on which the United States has obtained concessions in previous trade agreement negotiations:

Commodity	Present Concession Rate	
	U.S. cents per kilogram	U.S. cents 1/ per lb.
Fish or shellfish canned in oil or in any other form, in tins or other containers:		
Sardines (not boned) in tomato sauce or oil, of common or ordinary class	2.4	1.1
Salmon	3.9	1.8
Mackerel	2.8	1.3
Other fish or shellfish not specifically classified	2/ 0.5	2/ 2.3
Oysters of all kinds, and dried or fresh shellfish	4	1.8
Feed for fowls, including inter alia compositions of animal substances with or without other substances finely ground, and oyster shells crushed for the same purpose	1.2	0.5
Other feeds for animals, not specifically classified	2.6	1.2

1/ Calculated to nearest tenth of one cent.
2/ Plus 7 percent ad valorem.

Public hearings were due to be held, starting September 15, 1959, before the Committee for Reciprocity Information to prepare for (United States) participation in the forthcoming negotiations. The Committee is an (United States) interagency group which receives the views of interested persons on proposed or existing trade agreements.

In preparation for the negotiations, the Committee requested views from interested persons on the possible effect on (United States) trade of withdrawal or upward adjustment of concessions previously granted by Cuba under the General Agreement on Tariffs and Trade (GATT). The Committee also invited views regarding other concessions which the United States might seek from Cuba as compensation.

The Cuban Government acted under provisions of Article XXVII of the General Agreement, whereby a contracting party wishing to withdraw or modify concessions in its schedule may enter into negotiations for that purpose. The revision of its customs tariff has been under consideration by the Cuban Government for several years. Early in 1958, it put into effect new nomenclature and rates of duty for imports from countries with which it does not have trade agreements or other commercial arrangements. Pending the completion of the present renegotiations, the existing nomenclature and rates will continue in effect.

Federal Trade Commission

CONSENT ORDER PROHIBITS CALIFORNIA CANNED FISH PACKER FROM PAYING ILLEGAL DISCOUNTS:

The Federal Trade Commission (FTC) on August 21, 1959, ordered (Consent Order 7438 Food Products) a San Francisco, Calif., canned fish packer to stop granting illegal discounts or allowances in lieu of brokerage.

The Commission affirmed the Hearing Examiner's, June 16, 1959 order, which had been agreed to by both the company and the FTC's Bureau of Litigation.

The FTC's complaint of March 12, 1959, had charged that the company, which processes and sells canned fish, fruit, and vegetables, gave to customers buying directly from it commission payments, discounts, or other allowances reflecting the 2½ percent fee it normally must pay brokers for negotiating sales of its products. The granting of payments or discounts in lieu of brokerage is prohibited by Sec. 2(c) of the Robinson-Patman Amendment to the Clayton Act. The order forbids such illegal payments in the future.

The agreement is for settlement purposes only and does not constitute an admission by the company that it has violated the law.

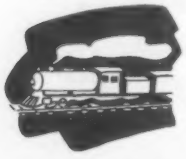
Department of the Interior

FISH AND WILDLIFE SERVICE

PROPOSED INCREASES IN RAILWAY EXPRESS RATES PROTESTED BY INTERIOR DEPARTMENT:

The Railway Express Agency has filed tariffs to increase most less-than-carload express rates to become effective September 1, 1959. The amounts of the increases are (1) 35 cents per hundred pounds between points within the Eastern territory and between points within the Mountain Pacific territory, minimum of 35 cents per shipment, and (2) 25 cents per hundred pounds, 25 cents minimum per shipment, between all other points.

The U. S. Department of the Interior has petitioned the Interstate Commerce Commission for suspension of the operation of the schedules and to institute an investigation as to the lawfulness of the schedules.



The Department's petition for suspension follows:

"BEFORE THE INTERSTATE COMMERCE COMMISSION
PETITION FOR SUSPENSION

"COME NOW the United States Department of the Interior, which is required by the Agricultural Marketing Act of 1946, as amended (7 U.S.C. 1621-27), and pursuant to the Fish and Wildlife Act of 1956 (16 U.S.C. 742e) and Bureau of the Budget determination (23 FR 2304, 3/22/58) to assist the fishing industry in the "improvement of transportation facilities and rates for fish and shellfish and any products thereof," and respectfully submits this petition for investigation and suspension.

"Many of the increases provided in the tariffs referred to above obviously will cause increased costs to the fishing industry for shipments of its products via Railway Express. The fishing industry is experiencing economic difficulties and there is some question if it can bear this increase in costs. Furthermore, the above referenced tariff increases will be borne more heavily, percentagewise, on the shipments where the rates are low as compared to those that are higher. There is some question as to the economic justification of this type of increase.

"For reasons heretofore stated, the Department of the Interior respectfully requests the Interstate Commerce Commission to suspend the operation of the above referenced schedules and to institute an investigation as to the lawfulness of the schedules.

"It is further requested that the Commission's Board of Suspension give notification of the decision voted by Division II and the minute entered by it relative to this protest (such as can be given by telephone in lieu of telegraph - Code 183, Extensions 4796 or 2287).

Respectfully submitted,

/S/Fred A. Seaton
Secretary of the Interior"

Others who also petitioned for suspension of increased rates are: the National Fisheries Institute, American Retail Federation, California Grape and Tree Fruit League, Gift Shippers Association, International Apple Association, Inc., M. L. Todd Company, Inc., Public Utility Commissioner of Oregon, Rufus Schmur & Sons, Inc., Society of American Florists and Ornamental Horticulturists, Charles S. Stevenson, Texas Citrus & Vegetable Growers & Shippers, U. S. Department of Agriculture, and General Services Administration.

* * * * *

WHALING REGULATIONS AMENDED:

The whaling regulations, applicable to nationals and whaling enterprises of the United States, were amended in accordance with the changes made by the International Whaling Commission on October 6, 1958, and January 29, 1959. The amendments as they appeared in the July 14 Federal Register follow:

Chapter III—International Regulatory Agencies (Fishing and Whaling)

SUBCHAPTER B—INTERNATIONAL WHALING COMMISSION

PART 351—WHALING

Basis and purpose. Section 13 of the Whaling Convention Act of 1949 (64 Stat. 421, 425; 16 U.S.C., 1952 ed., 916k), the legislation implementing the International Convention for the Regulation of Whaling signed at Washington, December 2, 1946, by the United States of America and certain other Governments, provides that regulations of the International Whaling Commission shall be submitted for publication in the FEDERAL REGISTER by the Secretary of the Interior. Regulations of the Commission are defined to mean the whaling regulations in the schedule annexed to and constituting a part of the Convention in their original form or as modified, revised, or amended by the Commission. The provisions of the whaling regulations, as originally embodied in the schedule annexed to the Convention, have been amended several times by the International Whaling Commission. The whaling regulations, as last amended by the Commission in October 1957 were edited to conform in numbering, internal references, and similar items to regulations of the Administrative Committee of the Federal Register and were published in their entirety as Part 351, Title 50, Code of Federal Regulations, without change in the substantive provisions (23 F.R. 3063, May 8, 1958).

On October 6, 1958, and January 29, 1959, amendments to the whaling regulations made by the Commission at its tenth meeting, at The Hague, 1958, became effective. Since these amendments effect only minor changes in the regulations as published on May 8, 1958, republication of the regulations in their entirety is not necessary. Therefore, publication is made at this time of the changes in the regulations accomplished by the Commission amendments which came into operation on October 6, 1958, and January 29, 1959.

The provisions of the whaling regulations are applicable to nationals and whaling enterprises of the United States.

Amendments to the whaling regulations are adopted by the International Whaling Commission pursuant to Article V of the Convention without regard to the notice and public procedure requirements of the Administrative Procedure Act (5 U.S.C. 1001). Accordingly, in fulfillment of the duty imposed upon the Secretary of the Interior by section 13 of the Whaling Convention Act of 1949, the whaling regulations published as Part 351, Title 50, Code of Federal Regulations, as the same appeared in 23 F.R. 3063, May 8, 1958, are amended as set forth below.

Dated: July 7, 1959.

FRED A. SEATON,
Secretary of the Interior.

1. Paragraphs (a) and (b) of § 351.6 are amended to read as follows:

§ 351.6 Limitations on the taking of humpback whales.

(a) It is forbidden to kill or attempt to kill humpback whales in the North Atlantic Ocean for a period ending on November 8, 1964.

(b) It is forbidden to kill or attempt to kill humpback whales in the waters south of 40° South Latitude between 0° Longitude and 60° West Longitude for a period ending on November 8, 1964.

2. The proviso to paragraph (a) of § 351.8 is amended to read as follows: "*Provided*, That in the season 1958-59, the number of baleen whales taken as aforesaid shall not exceed fourteen thousand five hundred blue whale units."[1]

3. The proviso to paragraph (c) of § 351.8 is amended to read as follows: "*Provided*, That when the number of blue whale units is deemed by the Bureau of International Whaling Statistics to have reached 13,500 (but 13,000 in the season 1958–59) notification shall be given as aforesaid at the end of each day of data on the number of blue whale units taken."[2]

(Art. V, 62 Stat. 1718)

[1] The proviso to paragraph (a) of § 351.8 reflects a restriction on the taking of blue whale units as amended by the International Whaling Commission at its Tenth Meeting, at The Hague, 1958, which came into operation on January 29, 1959. The amendment was objected to by Norway, the Netherlands, the United Kingdom, Japan, and the U.S.S.R. within the prescribed period, and the amendment, therefore, is not binding on those countries.

[2] The proviso to paragraph (c) of § 351.8 reflects a restriction on the taking of blue whale units as amended by the International Whaling Commission at its Tenth Meeting, at The Hague, 1958, which came into operation on January 29, 1959. The amendment was objected to by Norway, the Netherlands, the United Kingdom, Japan, and the U.S.S.R. within the prescribed period, and the amendment, therefore, is not binding on those countries.

Note: Also see Commercial Fisheries Review, August 1958, p. 88.

Treasury Department

UNITED STATES CUSTOMS COURT

IMPORTED FISH FILLET BLOCKS IN BULK HELD DUTIABLE AT ONE CENT A POUND:

A recent decision (C. D. 2101) by the United States Customs Court held that fish fillet blocks imported in bulk are dutiable at one cent a pound. The case was the result of protests against the decision of the collector of customs at the port of New York that fish fillet blocks in bulk were dutiable at $2\frac{1}{2}$ cents a pound (or $1\frac{7}{8}$ cents a pound if imported within the quota). Judgement for the plaintiff was rendered July 15, 1959. The decision as reported in the July 23, 1959, issue of Treasury Decisions follows:

(C.D. 2101)

THE LEE HERRMANN CO., A/C THE COLDWATER SEAFOOD CORP. v. UNITED STATES

Fish, fresh or frozen, filleted, skinned, boned, sliced or divided into portions, not specially provided for—Fish, prepared or preserved, not specially provided for

Certain merchandise described as "haddock blocks" and "cod blocks" held properly dutiable at the rate of 1 cent per pound under paragraph 720(b), Tariff Act of 1930, as modified, as "Fish, prepared or preserved, not specially provided for: * * * In bulk or in immediate containers, weighing with their contents more than fifteen pounds each," as claimed, rather than classifiable at the rate of 2½ cents per pound under paragraph 717(b) of the said act as "Fish, fresh or frozen * * * filleted, skinned, boned, sliced, or divided into portions, not specially provided for."

The record discloses that the fish blocks in question, unlike fillets of frozen and fresh fish, are not composed of whole pieces of fish but comprise various pieces of fish together with bits and trimmings, in block form, and that they are not sold for direct consumption as imported, but are only used for further processing into fish sticks or fish portions. The imported merchandise is not fish "filleted," "skinned," "boned," "sliced," or fish "divided into portions." The case of *Iceland Products, Inc., and D. J. Ambrosio v. United States*, 38 Cust. Ct. 526, Abstract 60617, cited with approval.

United States Customs Court, First Division

Protests 317349-K and 317373-K against the decision of the collector of customs at the port of New York

[Judgment for plaintiff.]

(Decided July 15, 1959)

Barnes, Richardson & Colburn (*Joseph Schwartz* of counsel), for the plaintiff.
George Cochran Doub, Assistant Attorney General (*Murray Shiaroff*, trial attorney), for the defendant.

Before Oliver, Mollison, and Wilson, Judges

Wilson, Judge: The merchandise at bar, described as "haddock blocks" and "cod blocks," was classified for duty at the rate of 2½ cents per pound under the provisions of paragraph 717(b) of the Tariff Act of 1930 for "Fish, fresh or frozen * * * filleted, skinned, boned, sliced, or divided into portions, not specially provided for." It appears that the fish blocks in question were advisorily classified by the examiner as "fillets" (R. 75). Plaintiff claims the merchandise properly classifiable at the rate of 1 cent per pound under paragraph 720(b) of the act, as modified by the General Agreement on Tariffs and Trade, T.D. 51802, as "Fish, prepared or preserved, not specially provided for: * * * In bulk or in immediate containers, weighing with their contents more than fifteen pounds each."

Two sizes of fish blocks are described on the invoices herein: 12-pound and 22½-pound size, packed in corrugated paper containers. The 12-pound blocks are packed 5 blocks to each container, and the 22½-pound blocks are packed 3 blocks to a container.

A 12-pound block of fish illustrative of the imported merchandise, together with photographic representations of the items, was received in evidence as plaintiff's illustrative exhibit 1 and collective illustrative exhibit 2, respectively (R. 10–11). A package of fish offered as illustrative of "fish fillets" was received in evidence as plaintiff's illustrative exhibit 3 (R. 17). A photograph of a thawed-out 10-pound block of fish imported by the plaintiff herein, not, however, from the importation at bar, was received in evidence as defendant's illustrative exhibit A (R. 71).

Jon Gunnarsson, president of The Coldwater Seafood Corp., testified that his company imports seafood, including fish fillets and fish blocks, such as "cod blocks" and "haddock blocks," and various other types of fish. The witness described the production of fish blocks such as plaintiff's illustrative exhibit 1 as follows:

A. The flesh from the cod, for instance, is cut from the fish. The skin is taken away from the flesh, and the bones are removed, and there is a steel frame of this rectangular shape and size, correct size, to make the block, and also have the correct height of the steel frame. Then this flesh of the fish is thrown into the steel frame, and the length of the fish flesh is parallel to the width of the block, and then the small bits and trimmings are put into it to fill out where there are any voids between the whole pieces, and then all this is pressed together in a plate freezer under considerable pressure, more than any other fillets, in order to make it a compact mass of this fish flesh.

Q. You said the spaces, or some word to that effect, were filled with bits and trimmings?—A. Yes.

Q. Will you tell us why that is done?—A. In order to make it compact, so that when it is cut up for fishsticks production, that there are not any air spaces in the mass of fish. [R. 12.]

Mr. Gunnarsson explained the difference in production and use of the fish block (plaintiff's illustrative exhibit 1) and fillets (plaintiff's illustrative exhibit 3) as follows:

The Witness: In this Illustrative Exhibit 1, we use fish of all sizes and pieces, and also trimmings, in order to make it a compact mass, and it is pressed very firmly together in order to avoid any air space being inside, and it is used for processing, for processing, as I said, of fish sticks and portions, and then it is marketed, whereas the fillets in Illustrative Exhibit 3, they are whole fillets, cleanly cut, ready for the consuming public, and this particular pack of fillets is used here in this country for the catering trade. [R. 18–19.]

In the fish blocks, the fillets removed from the fish are not trimmed in any way. Any loose meat around the edges is left intact and the napes that are taken from the fillets are put into the block. Before pressing, all the open spots are filled with loose pieces and trimmings to make one compact mass, and the material is pressed together to make the fish block. Usually, the fish block contains about 10 per centum of small bits and trimmings. (R. 26–27.)

The testimony of the witness Gunnarsson to the effect that these fish blocks were cut into portions or sticks and further processed by breading and cooking, but that the fillets (plaintiff's illustrative exhibit 3), are sold in the same condition and in the same containers as when purchased, without any further processing, was confirmed by that of plaintiff's remaining witnesses (R. 42; 53). Plaintiff's witnesses, all of whom had dealt in merchandise, such as that at bar, as well as in fish "filleted," "skinned," "boned," "sliced," or "divided into portions," further testified that the fish block, plaintiff's illustrative exhibit 1, is not included within any of the latter terms, because it is not used for the same purpose as the items mentioned (R. 21; R. 64); that the merchandise represented by plaintiff's illustrative exhibit 1 would not be accepted as a good delivery of an order for fish "filleted," "skinned," "boned," "sliced," or "divided into portions" (R. 21; R. 50; R. 64); that the fish blocks under consideration are never thawed out for the purpose of obtaining fillets for sale (R. 22–23; R. 38; R. 67).

The Government's only witness was the examiner of the merchandise under consideration, who testified that he took a 10-pound cod block, consisting of bits of boneless and skinless fish, from a different importation by the same importer herein but produced by the same producer of the merchandise before the court, and that he had such block thawed out and photographed (defendant's illustrative exhibit A). Defendant's witness was unable to state the size of the pieces shown in defendant's illustrative exhibit A. In this connection, the record discloses the following colloquy:

Chief Judge Oliver: Is it fair for us to assume, looking at this photograph, Illustrative Exhibit A, that there were no small pieces in that block at all to fill in anything?

The Witness: That is everything that was in that block.

Chief Judge Oliver: Looking at the photograph, am I safe in saying there are no pieces in there, just these large pieces you show in the photograph?

The Witness: Exactly.

Judge Wilson: Would you say there are no small pieces in that block, Illustrative Exhibit 1?

The Witness: I couldn't say unless it was thawed, or nor can anybody else say. [R. 72.]

While defendant's witness insisted that if there were any small pieces adhering to the larger pieces, they would show up on the photograph, illustrative exhibit A, he agreed, however, that when a block, such as plaintiff's illustrative exhibit 1, is produced, it results in a quantity of fish "pressed together into a cohesive mass with some of the fibers of the fish becoming intertwined with each other." (R. 73.)

It is the position of the Government in the case at bar that the fish flesh comprising the fish blocks in question consists of filleted or skinned or boned fish, within the common meaning of those terms, and that, as a matter of law, freezing such fish in block form did not remove them from the provisions of paragraph 717(b) of the act under which the involved merchandise was classified.

Plaintiff, in its brief, argues that this case is controlled by the holding of the court in *Iceland Products, Inc., and D. J. Ambrosio* v. *United States*, 38 Cust. Ct. 526, Abstract 60817, involving the same "classification" and "claim" as here involved. In the above case, the loose flesh and trimmings obtained as a byproduct in processing "fillets" were placed in stainless steel or monel containers and were then packed in molds to make a 7-pound block. The fresh "block" was wrapped with parchment paper and, still in this form, was put into plate freezers and then quickfrozen. After it was quickfrozen, it was removed from the form and given a "glaze bath," i.e., the frozen block was submerged quickly in a bath of a weak salt brine which froze it immediately and formed an ice glaze, the purpose being to seal against dehydration. Then, these 7-pound blocks were massed in 8 blocks to the case.

The court, in the *Iceland Products* case, *supra*, in holding the involved blocks properly dutiable under paragraph 720(b) of the Tariff Act of 1930, as modified, *supra*, as "Fish, prepared or preserved, not specially provided for: * * * In bulk or in immediate containers weighing with their contents more than fifteen pounds each," at the rate of 1 cent per pound, as claimed, stated, page 527:

* * * All the fillets of frozen and fresh fish described in paragraph 717 are sold directly to the consuming public, as packed and in the condition as imported. On the other hand, the "Fish Bits" imported in the 7-pound frozen blocks, hereinbefore described, are never sold for direct consumption, as imported, but find a market only with companies who process the fish bits into fish flakes or fish cakes.

And, at page 528:

* * * We agree with the statement in plaintiffs' brief that "Fish Bits" are not made up of a solid piece. "Instead they are made of loose pieces, irregular in shape and size. No particular fish can be identified when the fish bits are in block form."

We are of opinion that the situation in the *Iceland Products* case, *supra*, parallels that in the case at bar and that the holding therein is decisive of the present issue. The testimony in this case also shows that the involved fish blocks are composed of fish of various sizes and loose pieces and trimmings and that they are only used by the processing trade and never sold for direct consumption as imported, whereas the "fillets" (plaintiff's illustrative exhibit 3) are whole fillets, cleanly cut, ready for the consuming public without further processing. In the Summary of Tariff Information 1929, relative to merchandise covered by paragraph 717(b) of the Tariff Act of 1930, we find, at page 1140, under the heading of "All Other Fish, Skinned or Boned, in Bulk, or in Immediate Containers Weighing With Their Content More Than 15 Pounds Each":

Description and uses.—* * *

Fillets are prepared from the whole fish by removing the head and entrails and cutting along each side of the skeleton to produce two pieces of flesh. Some fillets are further processed by removing the skin. The product is either shipped fresh for immediate consumption, frozen and held in storage for subsequent use, or smoked. * * *

It further appears from the record herein that the fish block in question, as imported, would not be accepted as a good delivery of an order for fish "filleted," "skinned," "boned," "sliced," or "divided into portions." Of similar import is the testimony of plaintiff's witnesses that, from a commercial standpoint, fish blocks, such as those in question, are never "thawed out" to obtain fish fillets or any of the other varieties of fish enumerated under the paragraph of the act (paragraph 717(b)) under which the involved merchandise was classified. This testimony stands uncontradicted. The fact that the fish blocks in the *Iceland Products* case, *supra*, were composed of scraps and bits of material obtained in trimming fillets, whereas, in the case at bar, the involved fish blocks are composed of large pieces of skinless and boneless fish to which are added loose pieces and trimmings, does not, in our opinion, call for a different determination than that here found. The witness who here testified on behalf of the Government agreed that when a block, such as plaintiff's illustrative exhibit 1, is produced, it results in a quantity of fish "pressed together into a cohesive mass with some of the fibers of the fish becoming intertwined with each other" (R. 73). Accordingly, in its condition as imported, the merchandise represented by plaintiff's illustrative exhibit 1 is not fish "filleted," "skinned," "boned," "sliced," or "divided into portions," having lost its identity as such. It has reached a condition beyond the latter stages and is marketable in such condition for further processing.

On the record presented, we hold the involved merchandise properly dutiable at the rate of 1 cent per pound under paragraph 720(b) of the Tariff Act of 1930, as modified by the General Agreement on Tariffs and Trade, T.D. 51802, as "Fish, prepared or preserved, not specially provided for: * * * In bulk or in immediate containers, weighing with their contents more than fifteen pounds each," as claimed. The protests are sustained.

Judgment will issue accordingly.

Eighty-Sixth Congress

(First Session)

Public bills and resolutions which may directly or indirectly affect the fisheries and allied industries are reported upon. Introduction, referral to committees, pertinent legislative actions, hearings, and other chamber actions by the House and Senate, as well as signature into law or other final disposition are covered.

COLOR ADDITIVES IN FOOD: Senate Committee on Labor and Public Welfare August 21 ordered favorably reported with amendments S. 2197, a bill to protect the public health by amending the Federal Food, Drug, and Cosmetic Act so as to authorize the use of suitable color additives in or on foods, drugs, and cosmetics, in accordance with regulations prescribing the conditions (including maximum tolerance) under which such additives may be safely used (S. Rept. No. 795).

Senate Report No. 795, Color Additive Amendments of 1959 (August 21, 1959, 86th Congress, 1st Session, Report of the Senate Committee on Labor and Public Welfare, to accompany S. 2197), 28 pp., printed. The report contains purpose and provisions of the bill, departmental comments and recommendations, present law and proposed changes, sectional analysis, and changes in existing law.

Senate August 24 passed without amendment and cleared for the House S. 2197.

COLUMBIA RIVER FISHERIES INVESTIGATION: Senate and House Conferees August 12, in executive session, filed a conference report on H. R. 7509, making appropriations for civil functions administrated by the Department of the Army, certain agencies of the Department of the Interior, and the Tennessee Valley Authority for fiscal year ending June 30, 1960, and for other purposes (H. Rept. 888). Included in the appropriation are funds for the Corps of Army Engineers and Bureau of Reclamation for water resources development, management, construction, and investigation programs including certain Columbia River Basin Projects.

House Report No. 888, Public Works Appropriation Bill, 1960 (August 12, 1959, 86th Congress, 1st Session, Conference Report of the Joint Senate and House Committee of Conferees to accompany H. R. 7509. . .), 26 pp., printed. Contains Committee on Conference recommendations on the disagreeing votes of the two Houses on the Senate amendments to H. R. 7509. Includes charts showing by States and Projects the budget estimates and Conference allowances.

House August 14 agreed to conference report (House Rept. No. 888) on H. R. 7509, voted to recede and concur in certain Senate amendments; and to recede and concur in an amendment with an amendment.

Senate August 17 adopted conference report on and cleared H. R. 7509 for the President.

The Conference-approved measure provided $1,206,728 for water development programs of the Corps of Army Engineers, Bureau of Reclamation, the Tennessee Valley Authority, Bonneville Power Administration, and the Southeastern and Southwestern Power Administration. This figure was $29.5 million above the House bill but $50 million below the amount approved by the Senate.

House Conferees agreed to the Senate-approved appropriations of $750,000 to finance River Basin Studies programs of the Bureau of Sport Fisheries and Wildlife. Earlier the Bureau of the Budget had requested that $836,400 be provided for this purpose through direct appropriation in the Department of the Interior and related Agencies Appropriation Bill but the request was rejected. Restoration of $750,000 in the Public Works Bill represented the recovery of a substantial part of the funds needed to determine the effects of river development programs on fish and wildlife and to compensate for losses to these resources. Language, written into the Senate bill and approved by the Conference Committee, specifically earmarks funds for these Fish and Wildlife Service investigations.

The Conferees also approved a $280,000 Senate item for use in carrying out fish and wildlife stud-

ies in connection with the Bureau of Reclamation's Missouri Basin Project. This action restored the amount recommended by the Budget Bureau but which had been denied earlier by the House.

Funds for planning three dams within the Snake River drainage of the Columbia River Basin--Bruce's Eddy, Little Goose, and Lower Monumental--were included in the bill by action of both the House and Senate. A Senate allowance of $200,000 for detailed planning of the lower Granite project on the Snake River was deleted by the Conference Committee.

President on August 26, 1959, vetoed H. R. 7509 (H. Doc. 222). In his veto message, the President cited that Congress had authorized and included 67 unbudgeted projects and urged Congress to enact a new bill appropriating funds only to finance projects now under construction and other going programs in the interest of an orderly development of America's water resources within the Nation's fiscal ability.

H. R. 9105 (Cannon), a bill making appropriations for civil functions administered by the Department of the Army, certain agencies of the Department of the Interior, and the Tennessee Valley Authority, for the fiscal year ending June 30, 1960, and for other purposes; without amendment (Rept. No. 1152); referred to the Committee of the Whole House on the State of the Union; introduced in House September 4. Report of the House Committee on Appropriations introduced as a clean bill in lieu of H. R. 7509, Public Works Appropriation Bill, vetoed by the President August 26, 1959. The provisions of the bill are the same as H. R. 7509, as agreed to in conference by the House and Senate, with the exception that each item, project, and activity has been reduced by 2½ percent.

House Report No. 1152, Public Works Appropriation Bill, 1960 (September 4, 1959, 86th Congress, 1st Session, Report of the House Committee on Appropriations to accompany H. R. 9105), 31 pp., printed. Report contains explanation of the bill, statement of the managers on the part of the House, and sectional analysis. Includes charts showing budget estimates and conference allowances for construction and planning by project and State.

Both Houses of Congress on September 8 passed without amendment H. R. 9105, which action cleared the bill for the President.

FEDERAL BOATING ACT OF 1958 AMENDMENT: H. R. 8728 (Bonner), a bill to amend the Federal Boating Act of 1958 to extend for an additional year the period when certain provisions of that Act will take effect; to the Committee on Merchant Marine and Fisheries; introduced in House August 19. The Federal Boating Act of 1958 (P. L. 85-911) included the establishment of a new system of numbering small undocumented vessels propelled by machinery of 10 or more horsepower using the navigable waters of the United States. The law provides that, except to the extent that States may adopt such new numbering system in the meantime, the new system administered by the Coast Guard will go into effect April 1, 1960. The legislation is designed to provide the additional time required to put the new numbering system into effect and for Congress to authorize the necessary appropriation to carry out the provisions of the law.

Also S. 2598 (Ellender and Long), a bill to amend the Federal Boating Act of 1958 to extend until January 1, 1961, the period when certain provisions of that Act will take effect; to the Committee on Interstate and Foreign Commerce; introduced in Senate August 25. Similar to H. R. 8728 previously introduced.

House Committee on Merchant Marine and Fisheries August 27 ordered favorably reported with amendment H. R. 8728 (Rept. No. 1059).

House Report No. 1059, Amending the Federal Boating Act of 1958 to Extend Until January 1, 1961, the Period When Certain Provisions of the Act will Take Effect (August 27, 1959, 86th Congress, 1st Session, Report of the House Committee on Merchant Marine and Fisheries, to accompany H. R. 8728, a bill to amend the Federal Boating Act of 1958, and for other purposes), 3 pp., printed. Contains purpose and provision of the bill, committee recommendations, and changes in existing law.

House August 31 passed H. R. 8728.

Senate Committee on Interstate and Foreign Commerce met in executive session September 1 and ordered favorably reported with amendment S. 2598 (S. Rept. 875). As amended, the bill would extend the effective date to April 1, 1961.

FISH AND WILDLIFE COOPERATIVE RESEARCH TRAINING UNITS: Subcommittee on Fisheries and Wildlife of the House Committee on Merchant Marine and Fisheries August 13 met in executive session and August 14 ordered favorably reported to the full committee H. R. 5814, a bill to provide for Fish and Wildlife cooperative research training programs between the Federal Government and the several States, colleges and universities, and private organizations.

FISH HATCHERIES: Senate Committee on Interstate and Foreign Commerce met in executive session August 12 and ordered favorably reported S. 2053, providing for the acceptance by the U. S. Government of a fish hatchery in South Carolina (S. Rept. 710). The legislation provides authority for the Secretary of the Interior to accept title to the Orangeburg County, S. C., fish hatchery, together with the right to take adequate water from the Orangeburg County Lake therefor, to acquire by purchase additional lands, and to develop, operate, and maintain the hatchery.

Senate Report No. 710, Orangeburg County, S. C., Fish Hatchery (August 13, 1959), 86th Congress, 1st Session, Report of the Senate Committee on Interstate and Foreign Commerce, to accompany S. 2053...), 3 pp., printed. Contains purpose and provisions of the bill, estimate of costs for construction and rehabilitation of facilities, Committee recommendations, and Departmental report.

The Senate August 19 passed S. 2053, without amendment, and cleared the bill for the House.

Senate August 19 passed without amendment and cleared for the President H. R. 2398, to provide for the establishment of a fish hatchery in the northwestern part of Pennsylvania.

The President August 25 signed into law H. R. 2398 (P. L. 86-206). Provides authorization to ea-

tablish, construct, equip, operate, and maintain a new Federal fish hatchery in the northwestern part of Pennsylvania for the purpose of (1) stocking waters on lands owned or controlled by the Federal Government, and (2) to assist the states to fulfill fishery management obligations.

FISHERY PRODUCTS INCLUDED IN FOOD STAMP PLAN: H. R. 8595 (Hagen), a bill to direct the Secretary of Agriculture to formulate and to put into operation a food stamp program, utilizing normal channels of trade; to the Committee on Agriculture; introduced in House August 10. Provides for a food stamp program as a means of increasing food expenditures and improving dietary levels of economically needy households and of expanding domestic markets for agricultural food commodities, including agricultural, horticultural and dairy products, food products of livestock and poultry, and fishery products.

FISHING VESSEL CONSTRUCTION SUBSIDIES: Senate Committee on Interstate and Foreign Commerce August 19 ordered favorably reported S. 2578, a clean bill in lieu of S. 1374, providing for a program of assistance to correct inequities in the construction of fishing vessels.

The House August 26 passed H. R. 5421, to provide a program of assistance to correct inequities in the construction of fishing vessels and to enable the U. S. fishing industry to regain a favorable economic status. A committee substitute amendment that provided new text was adopted prior to passage of the bill. H. Res. 349, the open rule under which the legislation was considered, had been adopted earlier by a voice vote. The bill as passed by the House provides for a subsidy of not to exceed 33⅓ per centum for the construction of new fishing vessels in shipyards of the United States over a 3-year period, and would authorize annual appropriations of one million dollars to carry out the provisions of the program. The subsidies would be granted only when tariff relief had been recommended by the Tariff Commission under the escape clause of the 1951 Trade Agreements Act, but denied by the President. The legislation further provides authority for the Maritime Administrator to set a subsidy based on the difference between minimum foreign and domestic shipbuilding costs, with a ceiling of 33⅓ percent of the cost, and placed construction under the Administrator's supervision; stipulated that subsidy applications be made to the Secretary of the Interior and show the need to replace lost, damaged, worn out or obsolete vessels: and directed repayment of subsidies on vessels used in the commercial fisheries for which they were not designed.

S. 2578 (Magnuson and 5 other Senators), a bill to provide a program of assistance to correct inequities in the construction of fishing vessels and to enable the fishing industry of the United States to regain a favorable economic status, and for other purposes; to the Committee on Interstate and Foreign Commerce; introduced in Senate August 21. Introduced as a clean bill in lieu of S. 1374, providing for a program of assistance to correct inequities in the construction of fishing vessels.

Senate Committee on Interstate and Foreign Commerce August 24 ordered favorably reported, without amendment, S. 2578, a bill to provide a program of assistance to correct inequities in the construction of fishing vessels and to enable the fishing industry of the United States to regain a favorable economic status, and for other purposes (S. Rept. 803). The legislation would provide for payment of a subsidy, not to exceed 33⅓ percent, for the construction of new fishing vessels in shipyards of the United States over a 3-year period, and would authorize annual appropriations of not more than $5 million to carry out the provisions of the program, and for other purposes.

Senate Report No. 803, Construction Differential For Fishing Vessels (August 24, 1959, 86th Congress, 1st Session, Report of the Senate Committee on Interstate and Foreign Commerce together with individual views, to accompany S. 2578. . .), 15 pp., printed. Report contains purpose and provisions of the bill, background of legislation, committee and departmental comments and recommendations, and certain minority and individual views opposing the legislation.

Senate on August 25 authorized to have printed as part 2 of S. Rept. 803, certain minority views on S. 2578, providing for a program of assistance to correct inequities in the construction of fishing vessels.

Senate Report No. 803, Part 2, Construction Differential For Fishing Vessels (August 25, 1959, 86th Congress, 1st Session, Report from the Committee on Interstate and Foreign Commerce submitting Minority Views, to accompany S. 2578), 2 pp., printed. Report contains certain minority views opposing enactment of the legislation.

Assistance to Depressed Segments of the Fishing Industry (Hearings April 28, 29, 30, June 4, and 11, 1959, before Subcommittee on Fisheries and Wildlife Conservation of the House Committee on Merchant Marine and Fisheries, 86th Congress, 1st Session, on H. R. 5421 and similar bills H. R. 181, H. R. 390, H. R. 3053, and H. R. 5566, to provide a program of assistance to correct inequities in the construction of fishing vessels and to enable the fishing industry of the United States to regain a favorable economic status, and for other purposes), 203 pp., printed including table of contents. Report contains text of bill; testimony presented by representatives of Government agencies, the Congress, and industry; additional information, letters, and telegrams submitted for the record; and various charts covering construction costs, subsidies, loans, and related subjects.

FISHING VESSEL MORTGAGE INSURANCE FUND: Senate Committee on Interstate and Foreign Commerce August 27 ordered favorably reported without amendment S. 2481, a bill to continue the application of the Merchant Marine Act of 1936, as amended, to certain functions relating to fishing vessels transferred to the Secretary of the Interior, and for other purposes (S. Rept. No. 832). The legislation would create a Federal Fishing Vessel Mortgage Insurance Fund to be used by the Secretary of the Interior as a revolving fund for the purposes of carrying out the ship mortgage provisions of title XI of the Merchant Marine Act of 1936, as amended, as it applies to fishing vessels under the Fish and Wildlife Act of 1956 (70 Stat. 1122). Further provides that if at any time funds are not sufficient to pay any amount the Secretary of the Interior is required to pay on ship mortgage insurance on fishing vessels, notes or other obligations may be issued to the Secretary of the Treasury as may be necessary.

Senate Report No. 832, Relating to Vessel Mortgage Insurance Functions Transferred to Secretary of the Interior (August 27, 1959, Report of the Sen-

ate Committee on Interstate and Foreign Commerce, to accompany S. 2481, 6 pp., printed. Contains purpose and provisions of the legislation, Committee recommendations, and reports of interested Government departments and agencies.

GAME FISH IN DAM RESERVOIRS RESEARCH: Senate Committee on Interstate and Foreign Commerce met in executive session on August 12 and ordered favorably reported with amendment S. 1262, to establish a research program to determine means of improving the conservation of game fish in dam reservoirs (S. Rept. 707).

Senate Report No. 707, Conservation of Fish in Dam Reservoirs (August 13, 1959, 86th Congress, 1st Session, Report of the Senate Committee on Interstate and Foreign Commerce, to accompany S. 1262), 3 pp., printed. The report contains purpose and provisions of the bill, Committee recommendations, and report of the Department of Interior. The legislation would give the Secretary of the Interior authority to conduct a nationwide study of reservoirs, Federal, State, local, or private, to determine methods for maintaining and increasing fishery assets; and would authorize the appropriations of such sums as may be necessary to carry out the provisions of the Act.

The Senate August 19 passed S. 1262, with amendment, and cleared the bill for the House. Amendment provides for change to include "food" fish under the provisions of the legislation.

HAWAII STATEHOOD: The President August 21 signed a proclamation formally admitting Hawaii into the Union as the 50th state.

IMPORTED COMMODITY LABELING: House Committee on Ways and Means August 26 ordered favorably reported with additional amendments, H. R. 5054, a bill to amend the Tariff Act of 1930 with respect to the marking of imported articles and containers. Provides that imported articles removed from original container, repacked, and offered for sale, shall be marked to show to the ultimate purchaser in the United States the English name of the country of origin of such article.

House Committee on Ways and Means August 31 filed report on H. R. 5054 (H. Rept. 1078); referred to the Committee of the Whole House on the State of the Union.

House Report No. 1078, Marking of New Packages for Imported Articles (August 31, 1959, 86th Congress, 1st Session, Report of the House Committee on Ways and Means to accompany H. R. 5054 . . .), 5 pp., printed. Report contains committee comments and recommendations, purpose and provisions of the legislation, sectional analysis, changes in existing law, and includes a copy of Section 304 of the Tariff Act of 1930, as amended.

INSECTICIDES EFFECT UPON FISH AND WILDLIFE: Subcommittee on Fisheries and Wildlife of the House Committee on Merchant Marine and Fisheries August 13 met in executive session and on August 14 ordered favorably reported to the full committee H. R. 5813, a bill providing for continuing studies of the effects of insecticides, etc., upon fish and wildlife resources.

House Committee on Merchant Marine and Fisheries met in executive session August 19 and ordered H. R. 5813 favorably reported to the House (H. Rept. 975).

House Report No. 975, Authorizing and Directing the Secretary of the Interior to Undertake Continuing Studies of the Effects of Insecticides, Herbicides, Fungicides, and Other Pesticides Upon Fish and Wildlife (August 24, 1959, 86th Congress, 1st Session, Report of the House Committee on Merchant Marine and Fisheries, to accompany H. R. 5813 . . .), 6 pp., printed. Contains purpose and provisions of the bill, committee and departmental recommendations and changes in existing law. Provides amendment to Public Law 85-582 to increase from $280,000 to $2,565,000 the annual appropriation authorized to carry out the studies specified by that Act.

Senate Committee on Interstate and Foreign Commerce met in executive session August 12 and ordered favorably reported with amendment S. 1575, authorizing continued studies of the effects of insecticides, herbicides, fungicides, and other pesticides upon fish and wildlife (S. Rept. 708).

Senate Report No. 708, Research and Studies on Insecticides (August 13, 1959, 86th Congress, 1st Session, Report of the Senate Committee on Interstate and Foreign Commerce to accompany S. 1575 . . .), 5 pp., printed. Contains purpose and provisions of the bill, estimate of cost, Committee recommendations, Departmental report, and changes in existing law. The legislation would amend Public Law 85-582, 85th Congress (72 Stat. 479) for the purpose of authorizing increased appropriations to carry out the studies specified by that Act.

Senate August 19 passed S. 1575, with amendment, and cleared the bill for the House. Senate amendment would remove limitations on appropriations provided in the Act of August 1, 1958, and would authorize to be appropriated such sums as are necessary to carry out the purposes of the Act.

House September 2 passed with amendment H. R. 5813, authorizing continued studies on the effects of insecticides, herbicides, fungicides, and other pesticides upon fish and wildlife. The passage was subsequently vacated and S. 1575, a similar bill, was passed by the House after being amended to contain the House-passed language and the amended bill was returned to the Senate. The House amendment to S. 1575 authorizes annual appropriations of $2,565,000 to carry out the objectives of the Act whereas the original Senate bill before amendment provided authorization to be appropriated such sums as are necessary, thereby placing no limitation on annual appropriations to carry out the provisions of the program.

INTERSTATE TRANSPORTATION OF FISH: Senate Committee on Interstate and Foreign Commerce, in executive session August 12, ordered favorably reported to the Senate H. R. 5854, to clarify a provision in the Black Bass Act relating to the interstate transportation of fish (S. Rept. 705). The legislation would provide amendment to the Black Bass Act, as amended, to make it clear

that lawfully-taken fish or fish eggs for stocking or breeding purposes could be shipped in interstate commerce.

Senate Report No. 705, Clarifying the Black Bass Act (August 13, 1959, 86th Congress, 1st Session, Report of the Senate Committee of Interstate and Foreign Commerce, to accompany H. R. 5854), 3 pp., printed. The report contains purpose and provisions of the bill, Committee recommendations, executive communications, and changes in existing law.

The Senate August 19 passed without amendment and cleared H. R. 5854 for the President.

The President August 25 signed into law H. R. 5854, to clarify a provision in the Black Bass Act relating to the interstate transporation of fish (P. L. 86-207).

MARINE GAME FISH RESEARCH: Subcommittee on Fisheries and Wildlife of the House Committee on Merchant Marine and Fisheries met August 13 in executive session and August 14 ordered favorably reported to the full committee H. R. 5004, a bill authorizing and providing for a Marine Game Fish Research program.

House Committee on Merchant Marine and Fisheries August 19 met in executive session and ordered favorably reported to the House H. R. 5004, to undertake continuing research on the biology of migratory marine species of game fish of the U. S. and contiguous waters (H. Rept. No. 974).

House Report No. 974, Authorizing and Directing the Secretary of the Interior to Undertake Continuing Research on the Biology Fluctuations, Status, and Statistics of the Migratory Marine Species of Game Fish of the United States and Contiguous Waters (August 24, 1959, 86th Congress, 1st Session, Report of the House Committee on Merchant Marine and Fisheries, to accompany H. R. 5004 . . .), 3 pp., printed. Contains the purpose and provisions of the bill, committee recommendations, and departmental report. The legislation provides for a program of marine game fish research for the purpose of developing wise conservation policies and constructive management activities and would authorize $2,700,000 be appropriated annually to carry out the provisions of the program.

House September 2 passed with amendment and sent to the Senate H. R. 5004. . . .

H. R. 8771 (Johnson of Maryland), a bill authorizing and directing the Secretary of the Interior to undertake continuing research on the biology, fluctuations, status, and statistics of the migratory marine species of game fish of the United States and contiguous waters; to the Committee on Merchant Marine and Fisheries; introduced in House August 24. Similar to H. R. 5004 and related bills previously introduced which would provide for a marine game fish research program.

Also H. R. 8809 (Thompson of Texas) introduced in House August 25.

MARINE GAME FISH COOPERATIVE RESEARCH INVESTIGATIONS: H. R. 8968 (Saylor), a bill to authorize the Secretary of the Interior to enter into cooperative agreements with States for research and management investigations on migratory and other marine species of game fish, and for other purposes; to the Committee on Merchant Marine and Fisheries; introduced in House August 31. Would authorize and provide for a cooperative research program between the Federal Government and the several States for conservation and management of migratory marine fish, and for other purposes. Somewhat similar to H. R. 5004, and related bills previously introduced, which provide for a marine game fish research program.

OCEANOGRAPHY EDUCATIONAL ASSISTANCE: Subcommittee on Earth Science of the Senate Committee on Science and Astronautics August 25 held hearings on H. R. 6298, amending the National Science Foundation Act of 1950 to provide financial assistance to educational institutions for the development of teaching facilities in the field of oceanography and to provide fellowships for graduate study in such field. Testimony was presented by Government and public witnesses and hearings adjourned subject to call of the Chair.

Senate Committee on Interstate and Foreign Commerce August 27 held an informal executive session to meet with the Committee on Oceanography, which is made up of the leading oceanographers in the United States, and was established by the National Academy of Sciences for the purpose of studying the present and future needs for increased oceanographic research.

OYSTER INDUSTRY ASSISTANCE: S. 2632 (Williams of New Jersey and 3 other Senators), a bill to assist the States of New Jersey and Delaware in developing a strain of oysters resistant to causes which threaten the oyster industry on the east coast; to the Committee on Interstate and Foreign Commerce; introduced in Senate September 2. Would authorize the Secretary of the Interior to purchase certain oyster brood stocks and to assist the States of New Jersey and Delaware to develop and propagate a strain of oysters resistant to the excessive mortality that threatens the oyster industry of those states with extinction. Somewhat similar to certain provisions of H. R. 8060 and related bills previously introduced.

POWER PROJECTS FISHERIES RESOURCES PROTECTION: S. 2586 (Church and Neuberger), a bill to provide for the conservation of anadromous fish spawning areas in the Salmon River, Idaho; to the Committee on Interstate and Foreign Commerce; introduced in Senate August 24. The proposed legislation would prohibit authorization for dams on the Salmon River in Idaho which would exceed in height those dams presently existing on downstream sections of the Snake and Columbia Rivers. Also would prevent licensing of any project by the Federal Power Commission which would tend to have a more restrictive effect on the passage of anadromous fish than similar projects already in existence throughout the Columbia River Basin. Further, the bill would require the Secretary of the Interior to report to the Congress on any conservation developments including those relating to fish passage around dams that in his opinion would justify amending the provisions of the proposed bill. If passed, the bill would open the Salmon River to possible power projects and development. Somewhat similar to provisions of

S. Con. Res. 35 and related bills previously introduced which provide for protection of fisheries resources in connection with certain Columbia River Basin development projects.

PRICE STABILITY: H. R. 8589 (Schwengel), a bill to amend the Employment Act of 1946 to make stability of prices an explicit part of the economic policy of the Federal Government; to the Committee on Government Operations; introduced in House August 10. Similar to H. R. 17 and related bills previously introduced.

RADIOACTIVE WASTE DISPOSAL RESTRICTIONS: Subcommittee on Radiation of the Joint Committee on Atomic Energy August 13 met in executive session to review drafts of reports on (1) Biological and Environmental Effects of Nuclear War, (2) Radioactive Fallouts from Weapons Tests, and (3) Radioactive Waste Disposal.

SALT-WATER RESEARCH LABORATORY: Senate Committee on Interstate and Foreign Commerce met in executive session August 12 and ordered favorably reported S. 1576, providing for the construction of a salt-water research laboratory at Seattle (S. Rept. 717). The legislation would provide for construction of a salt-water research laboratory in conjunction with the construction of an aquarium by the city of Seattle. The proposed laboratory would be operated jointly by the State of Washington Department of Fisheries, the University of Washington College of Fisheries and School of Oceanography, and the Fish and Wildlife Service for the purpose of conducting marine life research.

Senate Report No. 717, Construction of a Salt-Water Research Laboratory (August 13, 1959, 86th Congress, 1st session, Report of the Senate Committee on Interstate and Foreign Commerce, to accompany S. 1576. . .), 3 pp., printed. Contains purpose and provisions of the bill, estimated cost, committee recommendations, and Departmental report.

Senate August 19 passed S. 1576, without amendment, and cleared the bill for the House.

SEAWEEDS (GROUND, POWDERED OR GRANULATED) ON FREE IMPORT LIST: House Committee on Ways and Means September 1 ordered favorably reported with amendment, H. R. 5887, to amend the Tariff Act of 1930 to place ground, powdered, or granulated seaweeds on the free list. (H. Rept. No. 1144).

House Report No. 1144, Free Importation of Ground, Powdered, or Granulated Seaweeds (September 3, 1959, 86th Congress, 1st Session, Report from the Committee on Ways and Means to accompany H. R. 5887. . .), 2 pp., printed. Report contains purpose and provisions of the bill, committee recommendations, changes in existing law, and Paragraph 1722 of the Tariff Act of 1930 as amended.

SHRIMP IMPORT DUTIES: H. R. 8769 (Herlong), a bill to amend the Tariff Act of 1930 to provide for the establishment of country-by-country quotas for the importation of shrimps and shrimp products, to impose a duty on all unprocessed shrimp imported in excess of the applicable quota, and to impose a duty on processed shrimp and prohibit its importation in excess of the applicable quotas; to the Committee on Ways and Means; introduced in House August 26. Somewhat similar to H. R. 483 and related bills previously introduced which provide for duties on shrimp importations to protect the domestic industry and for other purposes. Whereas H. R. 483 would shift shrimp from the "free" to the "duty" list of import commodities, and provides for an ad valorem duty of 35 percent on all classifications of shrimp without exception, H. R. 8769 would provide for establishment of country-by-country import quotas and duties on both unprocessed and processed shrimp. Fresh or frozen shrimp, shell-on, vein-in, and not processed in any way (except that the heads may be removed), would be free of duty if imported within the limits of the applicable quota; imports in excess of such quota would be subject to a duty of 50 percent ad valorem. All processed shrimp as defined in the bill would be subject to a duty of 25 percent ad valorem and the importation of processed shrimp in excess of the applicable quota would be prohibited.

Also identical bills H. R. 8779 (Sikes), H. R. 8789 (Fascell), H. R. 8790 (Morrison), H. R. 8791 (Rogers of Florida), H. R. 8792 (Thompson of Louisiana), and H. R. 8793 (Willis), all introduced in House August 24; H. R. 8809 (Thompson of Texas), introduced in House August 25; H. R. 8850 (Blitch), H. R. 8851 (Cramer), H. R. 8852 (Dorn of South Carolina), H. R. 8870 (Lennon), all introduced in House August 26; H. R. 8899 (Kilgore), H. R. 8900 (Preston), H. R. 8926 (Boykin), H. R. 8927 (Mathews), introduced in House August 27; H. R. 8978 (Bray), H. R. 8979 (Gross), H. R. 8980 (McMillan), H. R. 8981 (Oliver), and H. R. 8982 (Rivers of South Carolina), all introduced in House August 31; H. R. 8993 (Ashmore), H. R. 8999 (Colmer), both introduced in House September 1; H. R. 9038 (Tollefson), introduced in House September 2; H. R. 9087 (Flynt), and H. R. 9098 (Young), both introduced in House September 4; all to the Committee on Ways and Means.

SMALL BUSINESS ACT AMENDMENTS OF 1959: H. R. 8599 (Patman), a bill to amend the Small Business Act, and for other purposes; to the Committee on Banking and Currency: introduced in House August 10. The main purpose of the bill is to increase the authority of the Small Business Administration to make loans under its regular business loan program and would increase loan limitation from the present authorization of $500 to $700 million. In addition, H. R. 8599 would make three minor amendments to (1) authorize the Small Business Administration to make prepayments of rentals on safety deposit boxes, (2) permit Small Business Administration to file reports on its operations annually, instead of every 6 months, and (3) repeal a provision concerning surveys of Small Business Administration operations by the Attorney General.

Subcommittee No. 3 of the House Committee on Banking and Currency held and concluded hearings August 14 and ordered H. R. 8599 favorably reported to the full committee.

House Committee on Banking and Currency August 19 ordered H. R. 8599 favorably reported to the House (H. Rept. 946).

House Report No. 946, Small Business Act Amendments of 1959 (August 19, 1959, 86th Congress, 1st Session, Report of the House Committee on Banking and Currency to accompany H. R. 8599. . .), 7 pp., printed. The report contains the purpose of the bill, background of legislation, business loan authority, surveys and reports, changes in existing law, and Committee recommendations.

House August 24 passed without amendment and cleared for the Senate, H. R. 8599, to increase the loan authority of the Small Business Administration from $500 million to $700 million, and for other purposes.

Small Business Act Amendments, 1959 (Hearings August 14, 1959, before Subcommittee No. 3 of the House Committee on Banking and Currency, 86th Congress, 1st Session, on H. R. 8599. . .), 21 pp., printed. The report contains testimony presented in support of the legislation, a review of the activities of the Small Business Administration, and recommendations relating to the Small Business Act. Also contains certain charts pertaining to activities of the agency.

The Subcommittee on Small Business of the Senate Committee on Banking and Currency August 20 met in executive session on amendments to the Small Business Act and ordered draft bills favorably reported to the full committee.

S. 2612 (Proxmire), an original bill to amend the Small Business Act; reported August 27 from the Committee on Banking and Currency to the Senate and placed on the calendar (S. Rept. 834). The legislation would provide for an increase in the Small Business Administration's revolving fund for its regular business loan program; and provides authority for appropriations to continue beyond 1960, the programs of grants for studies, research, and counseling concerning the managing, financing, and operation of small-business enterprises.

Senate Report No. 834, Amending the Small Business Act (August 27, 1959, 86th Congress, 1st Session, Report of the Senate Committee on Banking and Currency to accompany S. 2612. . .), 4 pp., printed. The report contains purpose and provisions of the bill, Committee recommendations, sectional analysis, and changes in existing law.

Also H. R. 8895 (Multer), a bill to amend the Small Business Act to provide that a small business concern may not be denied assistance thereunder solely because of the type of business to which it is engaged, if such business is lawful in the community where such concern is located; also H. R. 8896 (Roosevelt); to the Committee on Banking and Currency; introduced in House August 27.

Small Business Amendments of 1959: (Hearings June 22, 29, 30, July 1, 7, 20, 21, and 22, 1959, before a Subcommittee of the Senate Committee on Banking and Currency, 86th Congress, 1st Session, on various bills to amend the Small Business Act of 1958 and the Small Business Investment Act of 1958), 699 pp., printed, including table of contents. Report contains various bills introduced, reports from agencies that were received, statements of individuals, and memorandums, statements, and letters submitted for the record.

SMALL BUSINESS AID FOR FIRMS AFFECTED BY FOREIGN TRADE POLICY: H. R. 9023 (Bowles), a bill to provide assistance to communities, industries, business enterprises, and individuals to facilitate adjustment made necessary by the trade policy of the United States; to the Committee on Ways and Means; introduced in House September 2. Provides governmental assistance to those communities, industries, enterprises, and individuals adversely affected by the reciprocal trade program. Would provide help from the Federal Government to retrain individuals for new jobs, to render technical and financial assistance for conversion of plants to new items of production, and to assist communities in their efforts to attract new types of industry. Somewhat similar to S. 1609 previously introduced which, among other purposes, provides for assistance to small business concerns adversely affected by the foreign trade policy.

SMALL BUSINESS INVESTMENT ACT OF 1958 AMENDMENTS: The Subcommittee on Small Business of the Senate Committee on Banking and Currency August 20 met in executive session on amendments to the Small Business Investment Act of 1958 and ordered draft bills favorably reported to the full committee.

S. 2611 (Proxmire), an original bill to amend the Small Business Investment Act of 1958, and for other purposes; reported August 27 from the Committee on Banking and Currency to the Senate and placed on the calendar (S. Rept. 833). The legislation provides for amendments to the Small Business Investment Act of 1958 (P. L. 85-699) for the purpose of removing certain legal impediments to the formation and successful operation of small business investment companies.

Senate Report No. 833, Amendments to the Small Business Investment Act (August 27, 1959, 86th Congress, 1st Session, Report of the Senate Committee on Banking and Currency, to accompany S. 2611. . .), 19 pp., printed. Contains purpose and provisions of the bill, committee recommendations, sectional analysis, and changes in existing law.

SUPPLEMENTAL APPROPRIATIONS, 1960: House Report No. 943, Supplemental Appropriations Bill, 1960 (August 18, 1959, 86th Congress, 1st Session, Report of Joint House and Senate Committee of Conference to accompany H. R. 7978, a bill making supplemental appropriations for the fiscal year ending June 30, 1960, and for other purposes), 10 pp., printed. Contains Committee recommendations on the differences between the Senate- and House-passed versions of H. R. 7978. Included are funds for transitional grants to Alaska; for the National Outdoor Recreation Resources Review Commission; and for certain River Basin Study Commissions.

House disagreed to Senate amendments to H. R. 7978, agreed to conference requested by Senate, and on August 18, appointed conferees; Joint Committee of House and Senate Conferees met in executive session and filed conference report on differences between the Senate- and House-passed versions of H. R. 7978 (H. Rept. 943). The House and Senate on August 19 adopted the conference report on H. R. 7978, which actions cleared the bill for the President.

President on September 1, 1959, signed into law H. R. 7978, supplemental appropriations for fiscal 1960 (P. L. 86-213). Included are funds for transitional grants to Alaska; for the National Outdoor Recreation Resources Review Commission ($850,000) and for certain River Basin Study Commissions ($1,540,000).

FOOD CONSUMPTION IN AMERICAN HOMES

At the request of certain large subscriber companies, the Market Research Corporation of America has recently concluded a National Menu Census at an estimated cost of $750,000. The menu study is a record of food preparation and consumption in American homes based on reports by 4,000 families. Each of these families reported about menus used in the home over a two-week period, on a staggered basis.

The results of this study can be very helpful in planning business operations, developing new products, finding new users for existing products, and generally improving productivity of marketing operations.

The census tells what happens to food products brought into the home. It covers seasons, days of the week, types of families, and who in the family turns down an item when it is placed on the table.

A sampling of some of the findings of the menu study includes the following:

1. On a quantity basis, 4 percent of the families served more than 500 dishes in a 14-day period; 12 percent served 400-500 dishes; 33 percent served 300-400; 37 percent, 200-300; and 14 percent less than 200.

2. Snacks account for 8 percent of all food servings in American homes. However, one-third of all families serve three-quarters of all snack foods.

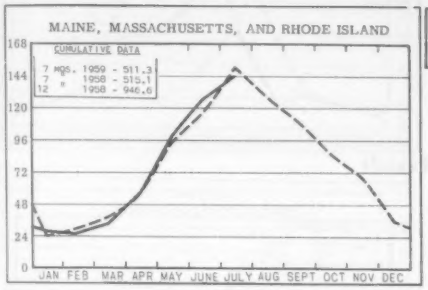
3. Someone in the family buys food on 45 percent of all days. Forty percent of the total family shopping trips take place on Friday and Saturday.

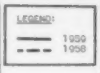
4. The morning meal is the most regular home-served meal, in that 90 percent of the families served breakfast every day in a given two-week period.

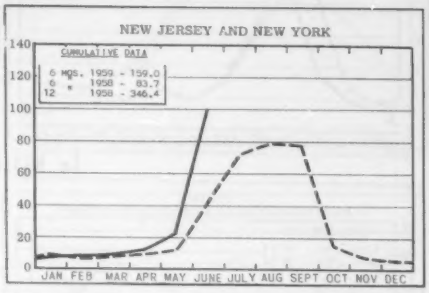
It was found that the serving frequency of fish, based on a national average of 100 percent, was a low of 70 percent in the North Central Region, and about one-fifth higher than the national average in the northeast and south. Poultry, however, was a low of 73 percent in the northeast, and approximately 50 percent higher than the national average in the south. (Excerpted from an article in Supermarket News, written in collaboration with the Market Research Corporation of America.)

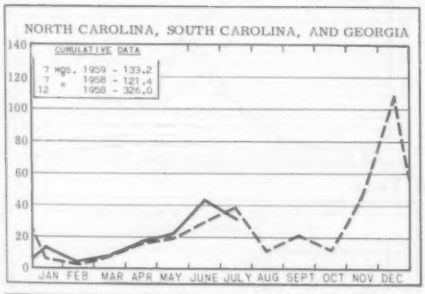
CHART 1 - FISHERY LANDINGS for SELECTED STATES

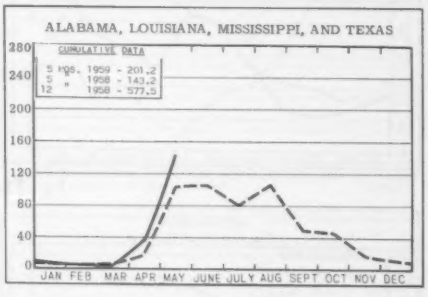
In Millions of Pounds

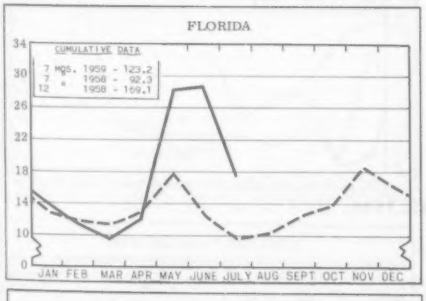

MAINE, MASSACHUSETTS, AND RHODE ISLAND
CUMULATIVE DATA
7 MOS. 1959 - 511.3
7 " 1958 - 519.1
12 " 1958 - 946.6
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

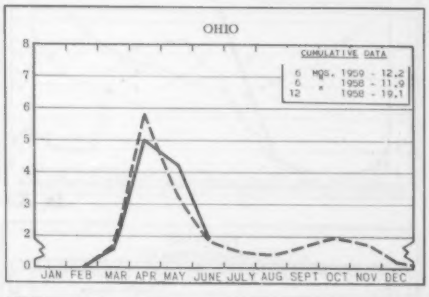


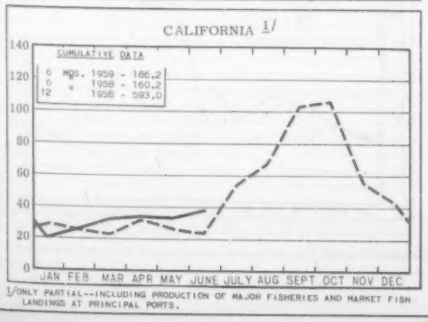

NEW JERSEY AND NEW YORK
CUMULATIVE DATA
6 MOS. 1959 - 159.0
6 " 1958 - 83.7
12 " 1958 - 346.4
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

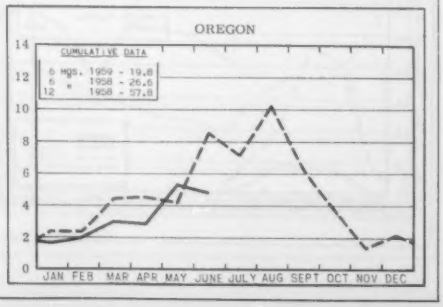

NORTH CAROLINA, SOUTH CAROLINA, AND GEORGIA
CUMULATIVE DATA
7 MOS. 1959 - 133.2
7 " 1958 - 121.4
12 " 1958 - 326.0
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC


ALABAMA, LOUISIANA, MISSISSIPPI, AND TEXAS
CUMULATIVE DATA
5 MOS. 1959 - 201.2
5 " 1958 - 143.2
12 " 1958 - 577.5
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC





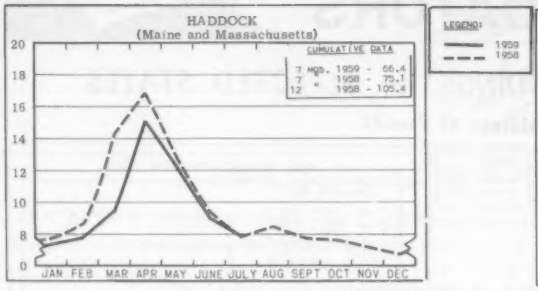


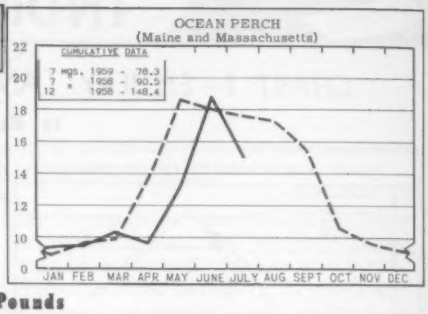


1/ONLY PARTIAL--INCLUDING PRODUCTION OF MAJOR FISHERIES AND MARKET FISH LANDINGS AT PRINCIPAL PORTS.

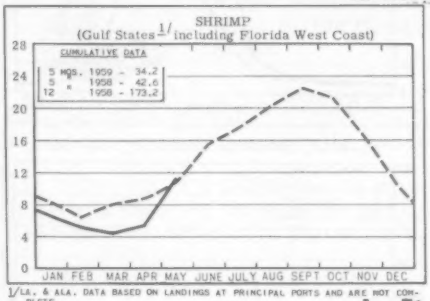
CHART 2 - LANDINGS for SELECTED FISHERIES

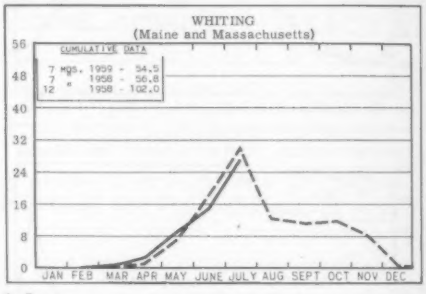
In Millions of Pounds




OCEAN PERCH
(Maine and Massachusetts)
CUMULATIVE DATA
7 MOS. 1959 - 78.3
7 " 1958 - 90.5
12 " 1958 - 148.4
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

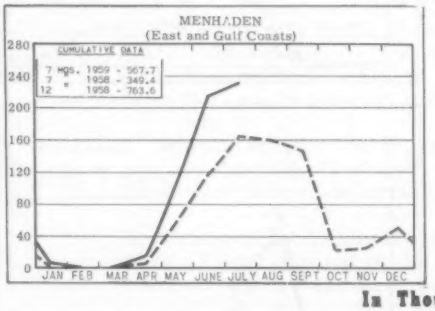
In Millions of Pounds

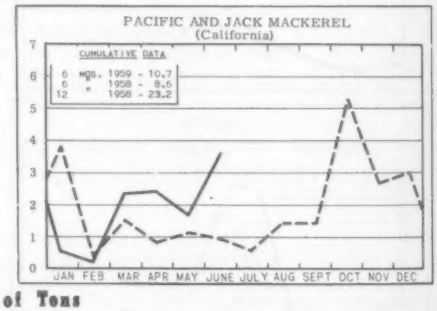

SHRIMP
(Gulf States 1/ including Florida West Coast)
CUMULATIVE DATA
5 MOS. 1959 - 34.2
5 " 1958 - 42.6
12 " 1958 - 173.2
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC


WHITING
(Maine and Massachusetts)
CUMULATIVE DATA
7 MOS. 1959 - 54.5
7 " 1958 - 56.8
12 " 1958 - 102.0
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

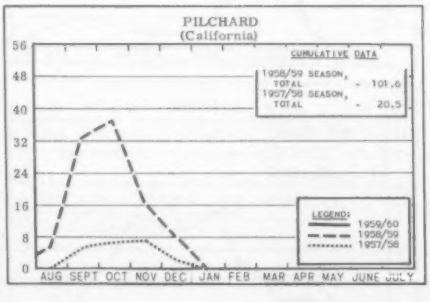
1/LA. & ALA. DATA BASED ON LANDINGS AT PRINCIPAL PORTS AND ARE NOT COMPLETE.

In Thousands of Tons


MENHADEN
(East and Gulf Coasts)
CUMULATIVE DATA
7 MOS. 1959 - 567.7
7 " 1958 - 349.4
12 " 1958 - 763.6
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC


PACIFIC AND JACK MACKEREL
(California)
CUMULATIVE DATA
6 MOS. 1959 - 10.7
6 " 1958 - 8.6
12 " 1958 - 23.2
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

In Thousands of Tons



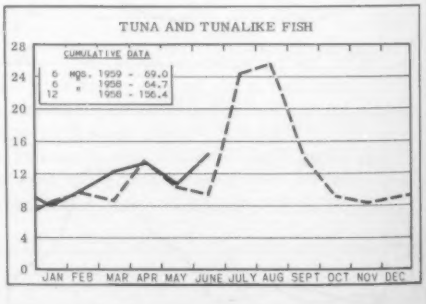
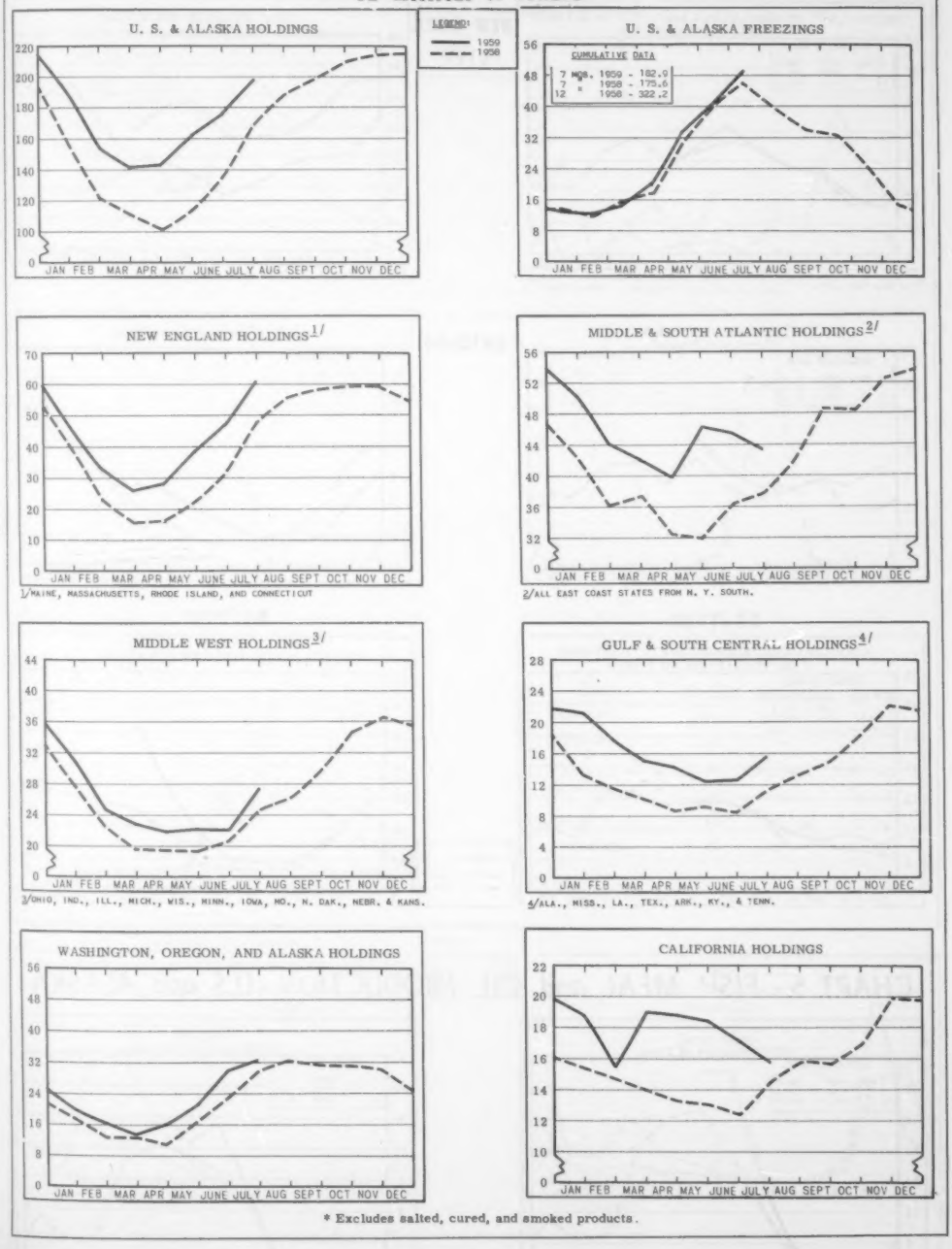

TUNA AND TUNALIKE FISH
CUMULATIVE DATA
6 MOS. 1959 - 69.0
6 " 1958 - 64.7
12 " 1958 - 156.4
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

CHART 3 - COLD-STORAGE HOLDINGS and FREEZINGS of FISHERY PRODUCTS *

In Millions of Pounds


U. S. & ALASKA HOLDINGS
LEGEND:
1959
1958
U. S. & ALASKA FREEZINGS
CUMULATIVE DATA
7 MOS. 1959 - 182.9
7 " 1958 - 175.6
12 " 1958 - 322.2
NEW ENGLAND HOLDINGS 1/
MIDDLE & SOUTH ATLANTIC HOLDINGS 2/
MIDDLE WEST HOLDINGS 3/
GULF & SOUTH CENTRAL HOLDINGS 4/
WASHINGTON, OREGON, AND ALASKA HOLDINGS
CALIFORNIA HOLDINGS
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

1/ MAINE, MASSACHUSETTS, RHODE ISLAND, AND CONNECTICUT

2/ ALL EAST COAST STATES FROM N. Y. SOUTH.

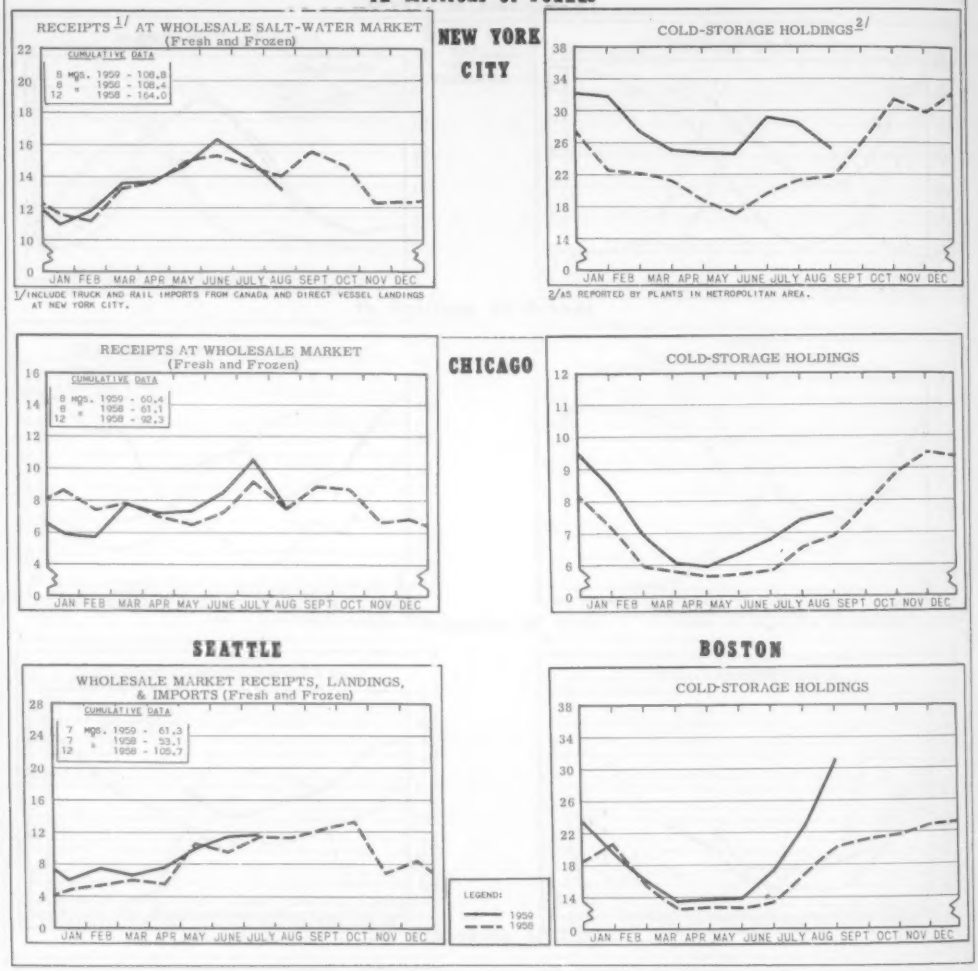
3/ OHIO, IND., ILL., MICH., WIS., MINN., IOWA, MO., N. DAK., NEBR. & KANS.

4/ ALA., MISS., LA., TEX., ARK., KY., & TENN.

* Excludes salted, cured, and smoked products.

CHART 4 - RECEIPTS and COLD-STORAGE HOLDINGS of FISHERY PRODUCTS at PRINCIPAL DISTRIBUTION CENTERS

In Millions of Pounds


NEW YORK CITY
RECEIPTS 1/ AT WHOLESALE SALT-WATER MARKET (Fresh and Frozen)
CUMULATIVE DATA
8 MOS. 1959 - 108.8
8 " 1958 - 108.4
12 " 1958 - 164.0
COLD-STORAGE HOLDINGS 2/
CHICAGO
RECEIPTS AT WHOLESALE MARKET (Fresh and Frozen)
CUMULATIVE DATA
8 MOS. 1959 - 60.4
8 " 1958 - 61.1
12 " 1958 - 92.3
COLD-STORAGE HOLDINGS
SEATTLE
WHOLESALE MARKET RECEIPTS, LANDINGS, & IMPORTS (Fresh and Frozen)
CUMULATIVE DATA
7 MOS. 1959 - 61.3
7 " 1958 - 53.1
12 " 1958 - 105.7
BOSTON
COLD-STORAGE HOLDINGS
LEGEND:
1959
1958
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

1/INCLUDE TRUCK AND RAIL IMPORTS FROM CANADA AND DIRECT VESSEL LANDINGS AT NEW YORK CITY.

2/AS REPORTED BY PLANTS IN METROPOLITAN AREA.

CHART 5 - FISH MEAL and OIL PRODUCTION - U.S and ALASKA

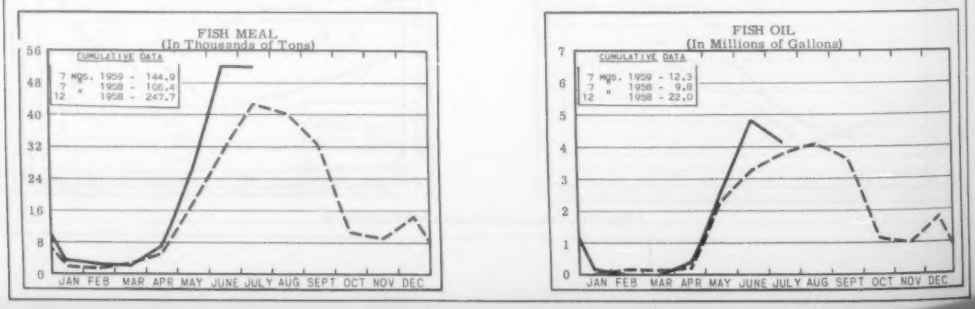
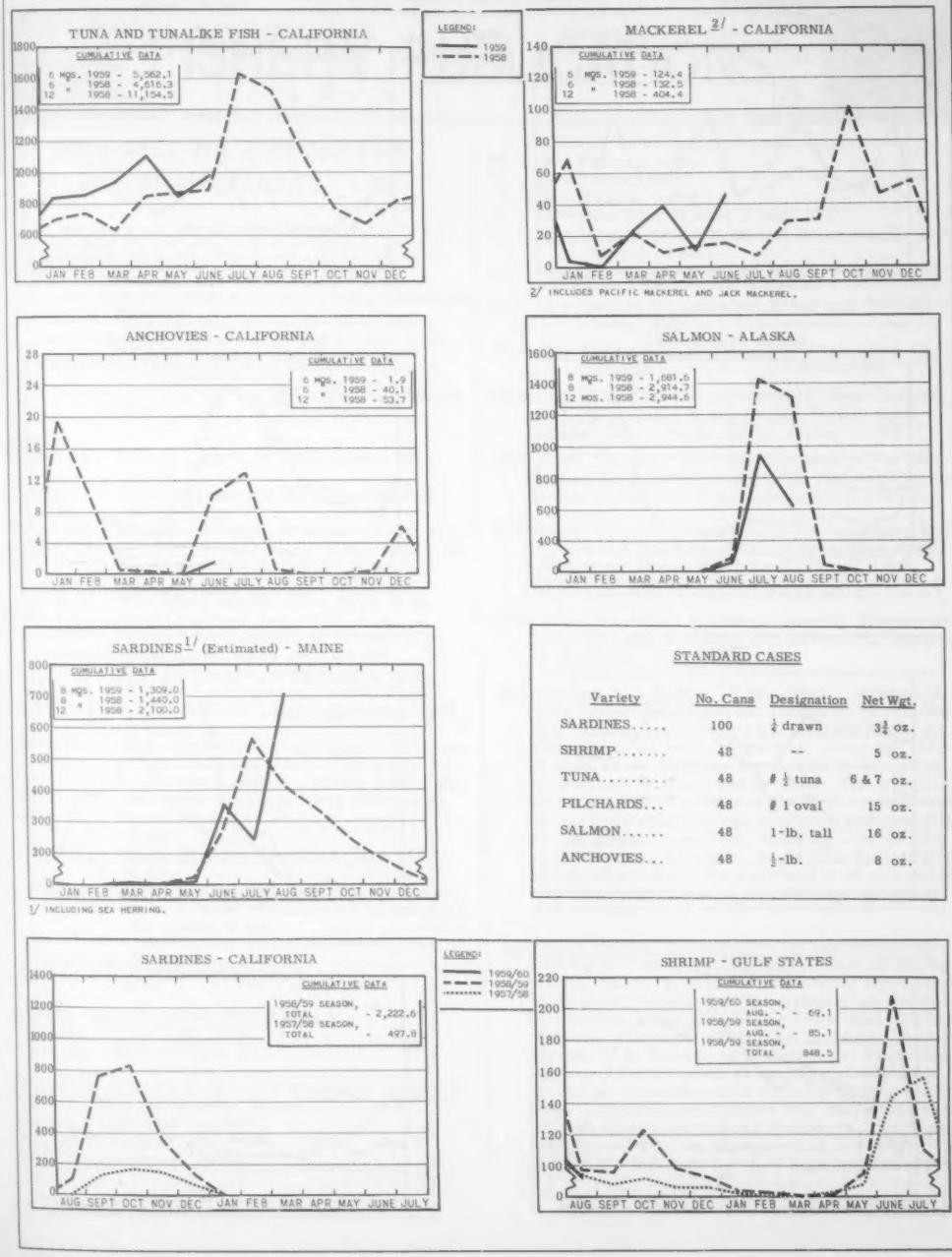

FISH MEAL
(In Thousands of Tons)
CUMULATIVE DATA
7 MOS. 1959 - 144.9
7 " 1958 - 106.4
12 " 1958 - 247.7
FISH OIL
(In Millions of Gallons)
CUMULATIVE DATA
7 MOS. 1959 - 12.3
7 " 1958 - 9.8
12 " 1958 - 22.0
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

CHART 6 - CANNED PACKS of SELECTED FISHERY PRODUCTS

In Thousands of Standard Cases

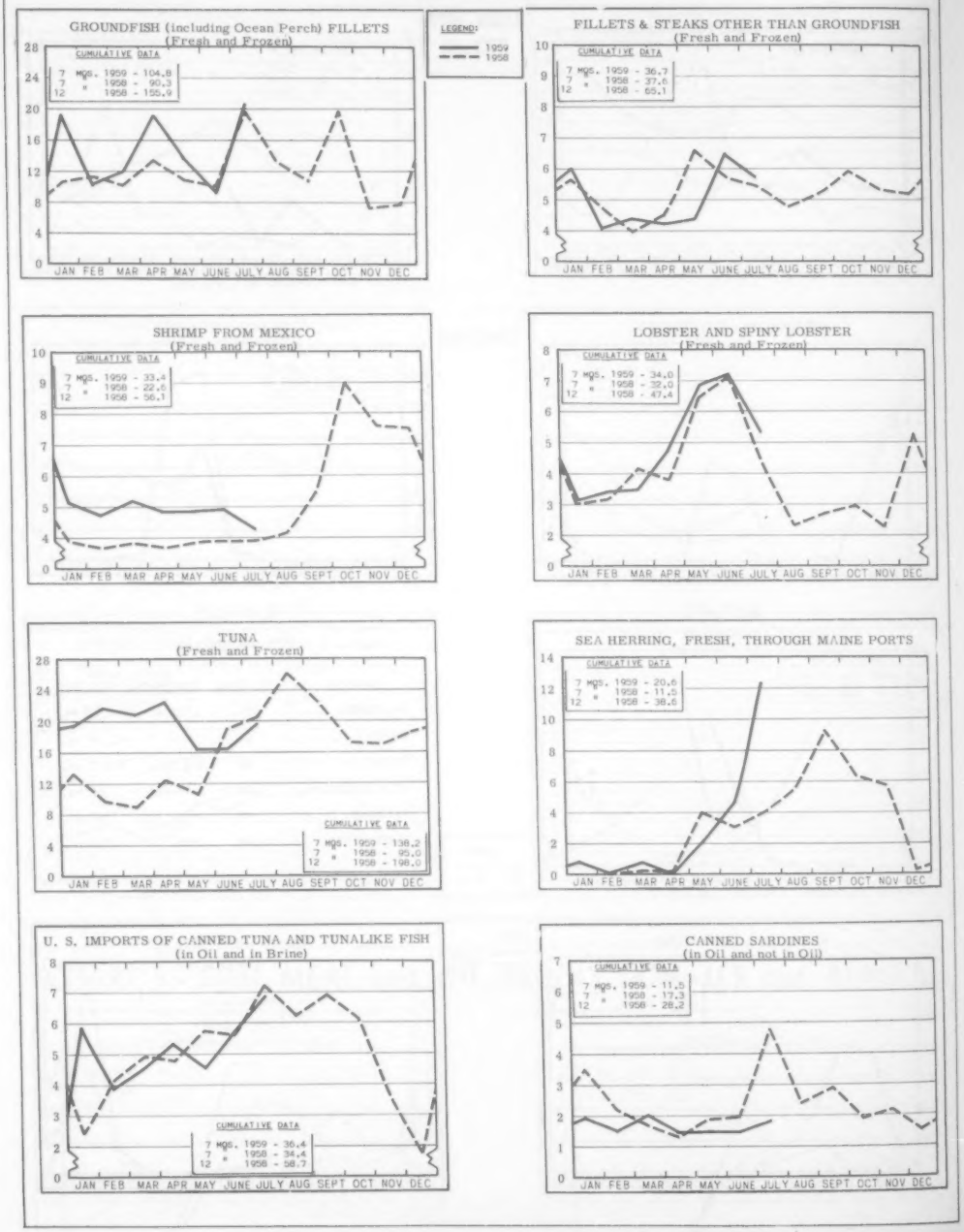

TUNA AND TUNALIKE FISH - CALIFORNIA
CUMULATIVE DATA
6 MOS. 1959 - 5,562.1
6 " 1958 - 4,616.3
12 " 1958 - 11,154.5
LEGEND:
1959
1958
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC
MACKEREL 2/ - CALIFORNIA
CUMULATIVE DATA
6 MOS. 1959 - 124.4
6 " 1958 - 132.5
12 " 1958 - 404.4
2/ INCLUDES PACIFIC MACKEREL AND JACK MACKEREL.
ANCHOVIES - CALIFORNIA
CUMULATIVE DATA
6 MOS. 1959 - 1.9
6 " 1958 - 40.1
12 " 1958 - 53.7
SALMON - ALASKA
CUMULATIVE DATA
6 MOS. 1959 - 1,681.6
6 " 1958 - 2,914.7
12 MOS. 1958 - 2,944.6
SARDINES 1/ (Estimated) - MAINE
CUMULATIVE DATA
6 MOS. 1959 - 1,309.0
6 " 1958 - 1,440.0
12 " 1958 - 2,100.0
1/ INCLUDING SEA HERRING.
SARDINES - CALIFORNIA
CUMULATIVE DATA
1958/59 SEASON, TOTAL - 2,222.6
1957/58 SEASON, TOTAL - 497.8
LEGEND:
1959/60
1958/59
1957/58
AUG SEPT OCT NOV DEC JAN FEB MAR APR MAY JUNE JULY
SHRIMP - GULF STATES
CUMULATIVE DATA
1959/60 SEASON, AUG. " - 69.1
1958/59 SEASON, AUG. " - 85.1
1958/59 SEASON, TOTAL 848.5
AUG SEPT OCT NOV DEC JAN FEB MAR APR MAY JUNE JULY

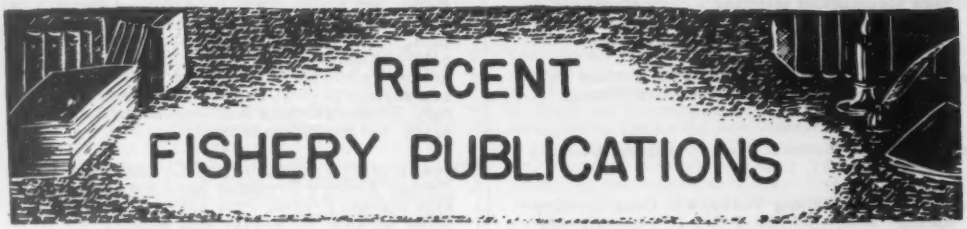
STANDARD CASES

Variety	No. Cans	Designation	Net Wgt.
SARDINES.....	100	¼ drawn	3¾ oz.
SHRIMP.....	48	--	5 oz.
TUNA.....	48	# ½ tuna	6 & 7 oz.
PILCHARDS...	48	# 1 oval	15 oz.
SALMON.....	48	1-lb. tall	16 oz.
ANCHOVIES...	48	½-lb.	8 oz.

CHART 7 - U.S. FISHERY PRODUCTS IMPORTS

In Millions of Pounds


GROUNDFISH (including Ocean Perch) FILLETS
(Fresh and Frozen)
CUMULATIVE DATA
7 MOS. 1959 - 104.8
7 " 1958 - 90.3
12 " 1958 - 155.9
LEGEND:
1959
1958
FILLETS & STEAKS OTHER THAN GROUNDFISH
(Fresh and Frozen)
CUMULATIVE DATA
7 MOS. 1959 - 36.7
7 " 1958 - 37.6
12 " 1958 - 65.1
SHRIMP FROM MEXICO
(Fresh and Frozen)
CUMULATIVE DATA
7 MOS. 1959 - 33.4
7 " 1958 - 22.6
12 " 1958 - 56.1
LOBSTER AND SPINY LOBSTER
(Fresh and Frozen)
CUMULATIVE DATA
7 MOS. 1959 - 34.0
7 " 1958 - 32.0
12 " 1958 - 47.4
TUNA
(Fresh and Frozen)
CUMULATIVE DATA
7 MOS. 1959 - 138.2
7 " 1958 - 95.0
12 " 1958 - 198.0
SEA HERRING, FRESH, THROUGH MAINE PORTS
CUMULATIVE DATA
7 MOS. 1959 - 20.6
7 " 1958 - 11.5
12 " 1958 - 38.6
U. S. IMPORTS OF CANNED TUNA AND TUNALIKE FISH
(in Oil and in Brine)
CUMULATIVE DATA
7 MOS. 1959 - 36.4
7 " 1958 - 34.4
12 " 1958 - 58.7
CANNED SARDINES
(in Oil and not in Oil)
CUMULATIVE DATA
7 MOS. 1959 - 11.5
7 " 1958 - 17.3
12 " 1958 - 28.2
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC



FISH AND WILDLIFE SERVICE PUBLICATIONS

THESE PROCESSED PUBLICATIONS ARE AVAILABLE FREE FROM THE DIVISION OF INFORMATION, U. S. FISH AND WILDLIFE SERVICE, WASHINGTON 25, D. C. TYPES OF PUBLICATIONS ARE DESIGNATED AS FOLLOWS:

CFS - CURRENT FISHERY STATISTICS OF THE UNITED STATES AND ALASKA.
FL - FISHERY LEAFLETS.
SL - BRANCH OF STATISTICS LISTS OF DEALERS IN AND PRODUCERS OF FISHERY PRODUCTS AND BYPRODUCTS.
SSR.-FISH. - SPECIAL SCIENTIFIC REPORTS--FISHERIES (LIMITED DISTRIBUTION).
SEP. - SEPARATES (REPRINTS) FROM COMMERCIAL FISHERIES REVIEW.

Number — Title

CFS-2056 - Shrimp Landings, 1958 Annual Summary, 21 pp.
CFS-2073 - Alaska Fisheries, 1958 Annual Summary, 8 pp.
CFS-2074 - Shrimp Landings, February 1959, 6 pp.
CFS-2076 - Mississippi Landings, April 1959, 2 pp.
CFS-2077 - North Carolina Landings, May 1959, 3 pp.
CFS-2079 - Fish Meal and Oil, May 1959, 2 pp.
CFS-2080 - Ohio Landings, May 1959, 2 pp.
CFS-2081 - Rhode Island Landings, March 1959, 3 pp.
CFS-2083 - Georgia Landings, May 1959, 2 pp.
CFS-2084 - Florida Landings, May 1959, 7 pp.
CFS-2085 - Massachusetts Landings, March 1959, 5 pp.
CFS-2091 - New Jersey Landings, April 1959, 3 pp.
CFS-2092 - Maine Landings, May 1959, 3 pp.
CFS-2093 - California Landings, March 1959, 4 pp.
CFS-2095 - New York Landings, May 1959, 4 pp.
CFS-2096 - Massachusetts Landings, April 1959, 5 pp.
CFS-2097 - South Carolina Landings, May 1959, 2 pp.
CFS-2099 - New Jersey Landings, May 1959, 3 pp.
CFS-2110 - South Atlantic Fisheries, 1958 Annual Summary, 6 pp.

Canned Fish Retail Prices:
FL-476i - June 1959, 27 pp.

Canned Fish Consumer Purchases:
FL-478f - May 1959, 31 pp.
FL-478g - June 1959, 31 pp.

Wholesale Dealers in Fishery Products (Revised):
SL- 2 - New Hampshire, 1959.
SL- 5 - Connecticut, 1957.
SL- 8 - Pennsylvania, 1959.
SL- 10 - Maryland, 1959.
SL- 16 - Florida, 1959.
SL- 20 - Texas, 1957.
SL- 26 - Illinois, 1958.
SL- 31 - New York (Lakes Area), 1958.
SL- 32 - Minnesota (Mississippi River and Tributaries), 1959.
SL- 35 - Illinois (Mississippi River and Tributaries), 1959.
SL- 37 - Kansas (Mississippi River and Tributaries), 1959.

SL-161 - Producers of Packaged Fish, 1958 (Revised).

SSR-Fish. No. 282 - Oceanographic Observations, 1959, East Coast of the United States, by C. Godfrey Day, 131 pp. illus., January 1959.

SSR-Fish. No. 291 - Stomach Contents of the Bering Sea King Crab, by Patsy A. McLaughlin and James F. Hebard, 8 pp., illus., April 1959.

SSR-Fish. No. 293 - Currents in Southeastern Bering Sea and Possible Effects Upon King Crab Larvae, by James F. Hebard, 17 pp., illus., April 1959.

SSR-Fish. No. 299 - Fishway Capacity Experiment, 1956, by Carl H. Elling and Howard L. Raymond, 31 pp., illus., May 1959.

Man, Dams, and Salmon, 6 pp., illus., processed. This folder describes the Columbia River fishery development program and its history. Describes the work carried on under the Columbia River Fishery Development Program authorized by Congress in 1946. The program was designed to conserve the fishery resources of the Columbia through artificial propagation, investigations, surveys, stocking, and stream improvement. To date, more than $10 million has been spent on the work and it is estimated that the total cost of the program may reach $50 million.

Summary Report, Symposium for Nutritionists, March 18, 1959, Technological Leaflet No. 20, 19 pp., illus., processed. Contains summaries of papers presented at the Symposium for Nutritionists sponsored by the Industrial Products Division, National Fisheries Institute. Issued by the U. S. Bureau of Commercial Fisheries as part of a program of nutritional advisory services in cooperation with the fishing industry. Summarizes papers on: biological value of fish meal in practical broiler rations; recent nutritional studies; fish meal as a source of unknown growth factor and of high-quality protein;

feed formulation utilizing a high-speed digital computer: and practical feed formulation with fish meal and condensed fish solubles.

Sep. No. 559 - Storage Life of Pink Shrimp Held in Commercial and Jacketed Cold-Storage Rooms.

Sep. No. 560 - Surinam Fishery Explorations, May 11-July 31, 1957.

Sep. No. 561 - Fishing Vessel and Gear Developments: Equipment Note No. 1--New All-Aluminum Salmon Gill-Net Boats Built for Alaska Fishery.

THE FOLLOWING PUBLICATIONS ARE AVAILABLE ONLY FROM THE SPECIFIC OFFICE MENTIONED:

(Baltimore) Monthly Summary - Fishery Products, May 1959, 6 pp. (Market News Service, U. S. Fish and Wildlife Service, 400 E. Lombard St., Baltimore 2, Md.) Reports receipts of fresh and frozen fishery products by original receivers on the Baltimore Wholesale Fish Market. Presents receipts of species by states and Canadian provinces; and states and provinces by species; for the month indicated.

California Fisheries, 1958, by V. J. Samson, 41 pp., processed. (Market News Service, Post Office Bldg., San Pedro, Calif.) This is a review of 1958 trends and conditions in the California fisheries, including a resume of American Tuna Boat Association tuna auction sales. Among the subjects discussed are the tuna fishery (cannery receipts; total pack for 1946-58; imports of frozen tuna and canned tuna in brine; ex-vessel prices; canned tuna market conditions, prices, and standards; modernization of California purse seiners; conversion of tuna clippers to purse seiners; and changes in the tuna fleets); California sardine (pilchard) fishery (landings, ex-vessel prices, canned pack, and canned sardine prices); mackerel fishery (cannery receipts, ex-vessel prices, and canned mackerel markets and wholesale prices); anchovy fishery ; canned pet-food production; whaling industry; and fishing seasons in major fisheries. Included in the statistical tables are data on tuna and tunalike fish (canners' receipts by species and by months; domestic landings; cannery receipts of frozen imported tuna; and canned pack by type of pack and by months); sardines (landings, canned pack, and meal and oil produced); mackerel and jack mackerel (canners' receipts and canned pack); canners' receipts and production of miscellaneous fishery products (receipts and canned pack of anchovies, herring, and squid; pet-food pack; and meal and oil production); California canned tuna price ranges, 1958; freezings of fish and shellfish by months; cold-storage holdings of fish and shellfish by months; landings of market fish and shellfish at Eureka, San Pedro-Santa Monica, and San Diego by species and by months; and imports of fishery products into Arizona and California Customs District, 1957-58 by commodity and country of origin.

California Fishery Products Monthly Summary, June 1959; 13 pp. (Market News Service, U. S. Fish and Wildlife Service, Post Office Bldg., San Pedro, Calif.) California cannery receipts of tuna and tunalike fish; pack of canned tuna, mackerel, and anchovies; market fish receipts at San Pedro, Santa Monica, and Eureka areas; California imports; canned fish and frozen shrimp prices; ex-vessel prices for cannery fish; American Tuna Boat Association auction sales; for the month indicated.

(Chicago) Monthly Summary of Chicago's Fresh and Frozen Fishery Products Receipts and Wholesale Market Prices, June 1959. 13 pp. (Market News Service, U. S. Fish and Wildlife Service, 565 W. Washington St., Chicago 6, Ill.) Receipts at Chicago by species and by states and provinces for fresh- and salt-water fish and shellfish; and wholesale prices for fresh and frozen fishery products; for the month indicated.

Monthly Summary of Fishery Products Production in Selected Areas of Virginia, North Carolina, and Maryland, July 1959, 4 pp. (Market News Service, U. S. Fish and Wildlife Service, 18 So. King St., Hampton, Va.) Fishery landings and production for the Virginia areas of Hampton Roads, Lower Northern Neck, and Eastern Shore; the Maryland areas of Crisfield, Cambridge, and Ocean City; and the North Carolina areas of Atlantic, Beaufort, and Morehead City; together with cumulative and comparative data; for the month indicated.

New England Fisheries--Monthly Summary, May 1959; June 1959; 22 pp. each. (Market News Service, U. S. Fish and Wildlife Service, 10 Commonwealth Pier, Boston 10, Mass.) Reviews the principal New England fishery ports, and presents food fish landings by ports and species; industrial fish landings and ex-vessel prices; imports; cold-storage stocks of fishery products in New England warehouses; fishery landings and ex-vessel prices for ports in Massachusetts (Boston, Gloucester, New Bedford, Provincetown, and Woods Hole), Maine (Portland and Rockland), Rhode Island (Point Judith), and Connecticut (Stonington); frozen fishery products prices to primary wholesalers at Boston, Gloucester, and New Bedford; and landings and ex-vessel prices for fares landed at the Boston Fish Pier and sold through the New England Fish Exchange; for the months indicated.

New York City's Wholesale Fishery Trade--Monthly Summary for April 1959, 18 pp. (Market News Service, 155 John St., New York 38, N. Y.) Includes summaries and analyses of receipts and prices on wholesale Fulton Fish Market, imports entered at New York City, primary wholesaler prices for frozen products, and marketing trends; for the month indicated.

(Seattle) Washington, Oregon, and Alaska Receipts and Landings of Fishery Products for Selected Areas and Fisheries, Monthly Summary, June 1959, 9 pp. (Market News Service, U. S. Fish and Wildlife Service, Pier 42 South, Seattle 4, Wash.) Includes landings and local receipts, with ex-vessel and wholesale prices in some instances, as reported by Seattle and Astoria, (Ore.) wholesale dealers; also Northwest Pacific halibut landings; and Washington shrimp landings; for the month indicated.

THE FOLLOWING SERVICE PUBLICATIONS ARE FOR SALE AND ARE AVAILABLE ONLY FROM THE SUPERINTENDENT OF DOCUMENTS, WASHINGTON 25, D. C.

Fluctuations in the Commercial Fisheries of Saginaw Bay, 1885-1956, by Ralph Hile and Howard J. Buettner, Research Report 51, 42 pp., illus., printed, 25 cents, 1959. This report presents, with the aid of many statistical tables and charts, the variations in abundance and in species composition of the catches during the years 1885-1956 in Saginaw Bay, Mich. Maximum and minimum catches in single years were 14.2 million pounds in 1902 and 2.8 million in 1956. Actual and percentage contributions of individual species to the total catch have varied widely, but the major change of species composition has occurred since 1943. By the early 1940's carp had taken over top position from the traditionally dominant lake herring. The interrelations of production, abundance (or availability), and fishing intensity in 1929-56 are described for the eight principal species. Of the species that command a generally good price in a strong market, only the catfish remains plentiful. Fishing pressures have been dwindling and the trend of total production has been strongly downward. The outlook for the fishery is poor. Profitable operation calls for restoration of some of the higher-priced species and this restoration in turn must await effective control of sea lampreys and a subsequent rehabilitation of fish stocks.

Fluctuation in the Population of Yellow Perch, PERCA FLAVESCENS (Mitchill), in Saginaw Bay Lake Huron, by Salah El-Din El-Zarka, Fishery Bulletin 151 (From Fishery Bulletin of the Fish and Wildlife Service, vol. 59), 55 pp., illus., printed, 40 cents, 1959.

Young Jack Crevalles (CARANX Species) Off the Southeastern Atlantic Coast of the United States, by Frederick H. Berry, Fishery Bulletin 152 (From Fishery Bulletin of the Fish and Wildlife Service, vol. 59), 123 pp. illus., printed, 65 cents, 1959.

MISCELLANEOUS PUBLICATIONS

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE ORGANIZATION ISSUING THEM. CORRESPONDENCE REGARDING PUBLICATIONS THAT FOLLOW SHOULD BE ADDRESSED TO THE RESPECTIVE ORGANIZATION OR PUBLISHER MENTIONED. DATA ON PRICES, IF READILY AVAILABLE, ARE SHOWN.

ANTIBIOTICS:

"Effect of Chlortetracycline (Aureomycin) on the Keeping Quality of Freshwater Fish under Tropical Conditions," by K. Visweswariah, M. N. Moorjani, D. S. Bhatia, and V. Subrahmanyan, article, Journal of the Fisheries Research Board of Canada, vol. 16, pp. 1-5, January 1959, printed. Queen's Printer and Controller of Stationery, Ottawa, Canada.

AUSTRALIA:

Second Annual Report on the Operation of the Fishing Industry Act 1956 During the Year Ended 30th June, 1958, 5 pp., processed. Department of Primary Industry, Canberra, Australia. This report summarizes activities during the year ended June 30, 1958, carried out under provision of the Fishing Industry Act of 1956, which established the Fisheries Development Trust Account for the purpose of financing activities designed to foster the development of the Australian fishing industry. It presents sections on: interdepartmental advisory committee on fisheries development; operation of the trust account; survey of prawn resources; survey of pilchard resources; trawling; barracuda; tuna; participation at the International Fishing Gear Congress; and financial statement.

BIOCHEMISTRY:

"Contributions to the Study of Marine Products. XLVII--22-Dehydrocholesterol," by Werner Bergmann and John P. Dusza, article, The Journal of Organic Chemistry, vol. 23, September 1958, pp. 1245-1247, printed. The Journal of Organic Chemistry, American Chemical Society, 1801 K St., N. W., Washington 6, D. C.

"Extraction of Melanophore-Concentrating Hormone (MCH) from the Pituitary of Fishes," by Katsutoshi Imai, article, Endocrinologia Japonica, vol. 5, 1958, pp. 34-48, printed in Japanese. Endocrinological Society of Japan, Eastern Branch, Tokyo, Japan.

"On the Formation of Amine in Fish Muscle. IV--Rapid Method for the Estimation of Histamine in Fish Muscle," by Fuyuo Ota, article, Bulletin of the Japanese Society of Scientific Fisheries, vol. 24, no. 1, 1958, pp. 41-44, illus., printed in Japanese with English abstract and tables. Japanese Society of Scientific Fisheries, c/o Tokyo University of Fisheries, Shiba-kaigandori 6-chome, Tokyo, Japan.

"Location of Cholinesterase in Fishes," by S. J. Lundin, article, Experientia, vol. 14, 1958, pp. 131-132, printed in English. Experientia, Revue Mensuelle des Sciences Pures et Appliquees, Birkhauser, Ltd., Elizabethenstr. 15, Basel 10, Switzerland.

"Mechanism of the Antibacterial Action of Spermine," by S. Razin and R. Rozansky, article, Archives of Biochemistry and Biophysics, vol. 81, March 1959, pp. 36-54, printed. Archives of Biochemistry and Biophysics, Academic Press, Inc., 125 East 23rd St., New York 10, N. Y.

"Preliminary Study of the Distribution of Non-protein Nitrogen in Some Marine Fishes and Invertebrates," by N. L. Velankar and T. K. Govindan, article, Proceedings of the Indian Academy of Sciences, vol. 47B, 1958, pp. 202-209, printed. Indian Academy of Sciences, Bangalore, India.

"Tetrazolium Reduction Test in Relation to Species of Fish, pH of the Media, and Incubation Period," by M. N. Moorjani and J. R. Iyergar, article, Food Science, vol. 6, 1957, pp. 203-205, printed. Central Food Technological Research Institute, Mysore City, India.

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BIOLOGICAL RESEARCH:
(Beaudette Foundation for Biological Research) First Annual Progress Report June 20, 1958-May 12, 1959, 13 pp. illus., printed. Beaudette Foundation for Biological Research, Box 482, R. F. D. 1, Solvang, Calif.

BIVALVES:
Survival of Some Juvenile Bivalves in Water of Low Salinity, by Paul E. Chanley, 14 pp., illus., printed. (Reprinted from Proceedings of the National Shellfisheries Association, vol. 48, 1958, pp. 52-65.) John B. Glude, Secretary-Treasurer, National Shellfisheries Association, Bureau of Commercial Fisheries, U. S. Department of the Interior, Washington 25, D. C.

CALIFORNIA:
Offshore Fishes of California, by John E. Fitch, 80 pp., illus., printed, 35 cents, State of California, Department of Fish and Game, Sacramento, Calif., 1958. An interestingly-written and well-illustrated booklet slanted primarily toward the sports fishermen but also of considerable interest to commercial fishermen. Presents general information on California's offshore fish and discusses habits and habitats; classification and anatomy; locomotion; food and feeding; age and growth; reproduction--sex, maturity and fecundity, spawning, eggs, and larvae; dangerous fishes; diseases and parasites; management; fishing ports; and marine aquaria. Also contains illustrations, descriptions, and fishing information for the principal species of offshore fish.

CANADA:
Fisheries Statistics of Canada, 1957 (New Brunswick), 45 pp., illus., printed in French and English, 75 Canadian cents. Queen's Printer and Controller of Stationery, Ottawa, Canada, 1959. Consists of tables giving the value of the principal species of fish and shellfish in New Brunswick, 1939-1957; quantity and value of landings by species and fisheries districts, 1956-57; quantity and value of manufactured fishery products by species and fisheries districts, 1956-57; capital equipment in the primary fisheries operations, by fisheries districts, 1956-57; and the number of persons engaged in the primary fisheries operations, by fisheries districts, 1956-57.

Fisheries Statistics of Canada, 1957 (Ontario, Prairie Provinces, and Northwest Territories), 78 pp., illus., printed in French and English, C$1. Queen's Printer and Controller of Stationery, Ottawa, Canada, June 1959. This report consists of tables giving the value of the principal species of inland fish landed, 1950-57; quantity and value of landings by species and fisheries districts, 1956-57; capital equipment used in the primary fisheries operations; and the number of persons engaged in the fisheries. This information is presented separately for the provinces of Ontario, Manitoba, Saskatchewan, and Alberta, and for the Northwest Territories.

Summary Statistics of Canada's Fisheries, 1938-1957, 32 pp., printed. (Reprinted from Canadian Fisheries Annual, 1959, pp. 67-98.) Department of Fisheries, Ottawa, Canada. Statistics are presented in eight sections on landings and value of Canadian fisheries and related data: (1) summary statistics for 1952-1958; (2) East Coast fisheries; (3) fresh-water fisheries; (4) West Coast fisheries; (5) fillet production; and (6), (7), and (8) export and imports. Also included is a directory of fishery products by type, such as fresh and frozen fish (whole or dressed), fresh and frozen fish (filleted), smoked fish (dressed or filleted), cured fish, canned fish (not including shellfish), shellfish (in shell or meat--not canned), canned shellfish, fish oils and fish livers, fish meal, and other fishery products. Listed under each classification are the companies which process that particular product. Data are mostly for 1957, although some 1958 figures are given.

COD:
"A Comparison of Various Salt Cod Products," by F. W. Van Klaveren and R. Legendre, article, Progress Reports of the Atlantic Coast Stations, no. 71, December 1958, pp. 3-5, printed. Fisheries Research Board of Canada, Atlantic Fisheries Experimental Station, Halifax, Nova Scotia, Canada.

"Vitamins and the Reproductive Cycle of Ovaries in Cod (Gadus morrhua)," by Olaf R. Braekkan, article, Fiskeridirektoratets Skrifter Serie Teknologiske Undersokelser; vol. III, no. 7, 1958, pp. 1-19, illus., printed. Director of Fisheries, Bergen, Norway.

EAST AFRICA:
East African Fisheries Research Organization Annual Report 1958, 50 pp., printed. East African Fisheries Research Organization, P. O. Box 343, Jinja, Uganda. Describes scientific work accomplished in the fields of hydrology, plankton, invertebrates, fish, and vertebrates other than fish. Also contains appendices covering: the food of non-cichlid fishes in Lake Victoria; notes on the culture of Tilapia nigra (Gunther) in ponds; the effect of temperature on the growth rate of T. zillii; growth of T. esculenta after maturation; growth of T. esculenta from large and small eggs; a pot test study of the effect of lake mud as a fertilizer; and the growth of a lung-fish in captivity. Includes a bibliography of recent publications on East African Fisheries and related subjects.

EDUCATION:
Digest of Annual Reports of State Boards for Vocational Education to the Office of Education, Division of Vocational Education (fiscal year ended June 30, 1958), 64 pp., illus., processed. Division of Vocational Education, Office of Education, U. S. Department of Health, Education, and Welfare, Washington 25, D. C. Data in this report are taken from the annual financial and statistical reports made by the States for fiscal year ended June 30, 1958. For the first time funds were appropriated by the Congress for vocational education in the fishing industry ($228,000). Enrollments and expenditures under this authorization are reported in 2 statistical tables. Some States have excellent pro-

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grams of training for the fishing industry at the present time, and among the most popular courses are navigation, radio operation, and Diesel engine mechanics. The promotion and successful operation of several adult programs for the fishing industry indicate an acceptance of this new emphasis which was added to the vocational program by recent Congressional action. These programs consist of courses dealing with seafood merchandising and include such topics as processing, quality control, prepackaging, display, promotion, purchasing, preparation, and the serving of fishery products.

EUROPEAN COMMON MARKET:

"The United States and the European Common Market," by John A. Birch, article, The Department of State Bulletin, vol. XLI, no. 1047, Publication 6856, July 20, 1959, pp. 88-93, printed, single copy 25 cents. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.) U. S. Department of State, Washington, D. C.

FATTY ACIDS:

"Analysis of Long-Chain Fatty Acids by Gas-Liquid Chromatography. Micromethod for Preparation of Methyl Esters," by Wilhelm Stoffel, Florence Chu, and Edward H. Ahrens, Jr., article, Analytical Chemistry, vol 31, February 1959, pp. 307-308, printed. American Chemical Society, 1801 K St., N.W., Washington 6, D. C.

"The Use of High Efficiency Capillary Columns for the Separation of Certain Cis-Trans Isomers of Long Chain Fatty Acid Esters by Gas Chromatography," by S. R. Lipsky, J. E. Lovelock, and R. A. Landowne, article, Journal of the American Chemical Society, vol. 81, February 20, 1959, p. 1010, printed. The American Chemical Society, 1801 K St., N. W., Washington 6, D. C.

FILLETS:

The Expressible Fluid of Fish Fillets. VII--Freezing Damage and Protein Denaturation under Pressure, by R. M. Love and O. Karsti, 9 pp., illus., printed. (Reprinted from the Journal of the Society of Food and Agriculture, no. 5, 1958, pp. 249-257.) Department of Scientific and Industrial Research, Torry Research Station, Aberdeen, Scotland. Fillets of cod were frozen at different speeds under various pressure. The effects of pressure on cell damage caused during the freezing and on denaturation of the proteins during subsequent cold storage were studied, and found to vary according to the experimental conditions. They were, however, less important than the effect of the rate of freezing, and in no cases were pressed fillets after storage inferior to unpressed in "eating" quality. It was concluded therefore that pressure during freezing was not harmful, but could be of benefit by accelerating the freezing through improved contact between the fillets and the cooling plates.

FISH FARMS:

"Fish Farming," article, Journal of Agricultre and Food Chemistry, vol. 7, February 1959, pp. 75-76, printed. American Chemical Society, 1801 K St., N. W., Washington 6, D. C.

FISH FLOUR:

"Fish Flour. 2--Factors Influencing Rate of Extraction; 3--Hold-up Fat," by G. M. Dreosti and R. P. van der Merwe, article, Annual Report, Fishing Industry Research Institute, April-December 1956, vol. 10, pp. 34-37, printed. Fishing Industry Research Institute, Cape Town, Union of South Africa, 1957.

FISH MEAL:

"Experimental Shipment of Fish Meal," by A. M. Lewis, article, Annual Report, Fishing Industry Research Institute, April-December 1956, vol. 10, p. 25, printed. Fishing Industry Research Institute, Cape Town, Union of South Africa, 1957.

"Loss of 'Fat' During Storage of Fish Meal," by G. H. Stander, article, Annual Report, Fishing Industry Research Institute, April-December 1956, vol. 10, p. 23, printed. Fishing Industry Research Institute, Cape Town, Union of South Africa, 1957.

FISH OILS:

"Influence of Dietary Cod-Liver Oil and Some Fractions of Cod-Liver Oil on Serum Cholesterol-Level of Rats," article, by A. P. de Groot, Nature, vol. 183, no. 4669, April 25, 1959, p. 1191, printed. MacMillan & Co., Ltd., St. Martin's Street, London, W. C. 2, England. Describes experiments in which the cholesterol-lowering properties of cod-liver oil were compared with vegetable oils. From the results of the experiments it was concluded that cod-liver oil has a higher cholesterol-lowering activity than corn oil and hydrogenated coconut oil.

"Preparation of a Coating Material by Chlorination of Fish Oil. II--Separation of the Product from the Solution in Carbontetrachloride by Precipitation Method," by Kosaku Suzuki, article, Bulletin of the Japanese Society of Scientific Fisheries, vol. 24, no. 5, 1958, pp. 381-385, illus., printed in Japanese with English abstract, tables, and figures. Japanese Society of Scientific Fisheries, c/o Tokyo University of Fisheries, Shiba-kaigandori 6-chome, Tokyo, Japan.

"Spectrophotometric Research on Sea-Fish Oils, by Giovanni D'Arrigo, article, Olii Minerali, Grassi e Saponi, Colori e Vernici, vol. 35, 1958, pp. 111-113, printed in Italian. Via G., Colombo 79, Milan 36, Italy.

FOOD AND AGRICULTURE ORGANIZATION:

Current Bibliography for Aquatic Sciences and Fisheries, vol. 2, no. 4, April 1959, 171 pp., processed. Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, Rome, Italy.

Mediterranean Trawling, Second and Third Reports, General Fisheries Council for the Mediterranean, Studies and Reviews, No. 6, May 1959, 32 pp., illus., processed. GFCM Secretariat, Food and Agriculture Organization of

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the United Nations, Rome, Italy. Presents the text of a working paper entitled "Mediterranean Trawl Study," presented at the 5th meeting of the General Fisheries Council for the Mediterranean at Rome on October 13-18, 1958. It describes results of experiments carried out under the auspices of the Government of Israel. Details are given of recommendations concerning choice and proper adjustment of otter boards; simplification of net design; increased opening height of the net; and use of strong, non-rotting synthetic fibers.

FOREIGN TRADE:

Sources of Information on Foreign Trade Practice, 51 pp., printed, 25 cents. Bureau of Foreign Commerce, U. S. Department of Commerce, Washington 25, D. C., January 1959. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.) This pamphlet is a revision of the bibliography, Foreign Trade Practice, issued by the U. S. Department of Commerce in June 1954. It presents sections on governmental sources, Department of Commerce publications, general sources, market analysis, statistics, regulations, preparing shipments, transportation, finance, standards, trade terms, arbitration, bibliographies and checklists, directories, and private trade journals.

FRANCE:

France Pêche, No. 30, June 1959, 68 pp. illus., printed in French. France Pêche, Tour Sud-Est, Rue de Guemene, Lorient, France. Contains, among others, the following articles: "Apres le 2e Congres Mondial des Bateaux de Pêche" (After the Second World Fishing Boat Congress), by Robert Lenier; "Les Langoustiers Bretons en Mauritanie" (Breton Crayfish Fishermen in Mauretania); "Les Oiseaux et la Peche" (Birds and Fishing), by Edouard Priol; and "Les Peches Marocaines et la France" (Morocco's Fishing and France).

La Pêche Maritime (The Marine Fishery), vol. 38, no. 975, June 1959, 67 pp., illus., printed in French. Les Editions Maritimes, 190 Boulevard Haussmann, Paris, France. Contains among others, the following articles: "Le Marche de la Sardine dans le Monde" (The Sardine Market in the World), by Geep; "L'Evolution du Marche de la Sardine" (The Evolution of the Sardine Market), by L. Plouas; "Donnees Economiques du Marche Sardinier" (Economic Data on the Sardine Market), by Andre-Marie d'Avigneau; "L'avenie de la Peche a la Sardine aux Sables-d'Olonne" (The Future of the Sardine Fishery at Sables-d'Olonne), by E. Anger; "L'aide Technique de l'Institut des Peches aux Marins-Pecheurs Sardiniers" (Technical Aid from the Fish Institute to Sardine Fishermen), by M. Letoux; "Le 'Ring Net,' Facteur d'Equilibre sur le Marche Algerien de la Sardine" (The "Ring Net," the Balancing Factor in the Algerian Sardine Market), by R. Simonnet; "L'organisation de la Peche a la Sardine au Portugal" (The Organization of the Sardine Fishery in Portugal).

FREEZING:

"Bibliography of Literature of Freezing Technology--January, 1958, to Date," article, Frosted Food Field, vol. 29, no. 6, July 1959, pp. 26-27, printed. Frosted Food Field, 111 No. Wabash, Chicago, Ill. This bibliography covers production and plant practice, product information, and research development and quality control.

"Fish Freezing Problems and Techniques," by M. B. F. Ranken, article, World Fishing, vol. 7, November 1958, pp. 63, 64, 69, and 70, printed. World Fishing, John Trundell (Publishers) Ltd., St. Richard's House, Eversholt St., London, N. W. 1, England.

"Studies on the Organic Phosphates in Muscle of Aquatic Animals. V--Changes in Muscular Nucleotides of Carp During Freezing and Storage," by Tsuneyuki Saito and Ken-ichi Arai, article, Bulletin of the Japanese Society of Scientific Fisheries, vol. 23, no. 5, 1957, pp. 265-268, illus., printed in Japanese with English abstract, figure, and tables. Japanese Society of Scientific Fisheries, c/o Tokyo University of Fisheries, Shiba-kaigandori 6-chome, Tokyo, Japan.

FROZEN FISH:

"Fat Hydrolysis in Frozen Fish. 1--Free Fatty Acid Formation," by W. J. Dyer, Doris I. Fraser, and E. G. Bligh, article, Progress Reports of the Atlantic Coast Stations, no. 71, December 1958, pp. 17-19, printed. Fisheries Research Board of Canada, Atlantic Fisheries Experimental Station, Halifax, Nova Scotia, Canada.

GERMANY:

Allgemeine Grundlagen der Fischereipolitik (Basic Policies for Fisheries), by Dr. Wilhelm Blanke, 110 pp., illu., processed, in German. Forschungsstelle fur Fischereiwirtschaft, Parkstrasse 50, Bremen, Germany, 1959.

HADDOCK:

Rapid Determination of the Quality of Whole Eviscerated Haddock, by B. E. Proctor, J. T. R. Nickerson, T. L. Fazzina, L. Ronsivalli, R. K. Smith, and J. Stern, 5 pp., illus., printed. (Reprinted from Food Technology, vol. 13, no. 4, April 1959, pp. 224-228.) Department of Food Technology, Massachusetts Institute of Technology, Cambridge 39, Mass. A test based on the refractive index of the eye fluids of haddock has been developed as a criterion of quality. The refractive index of haddock eye fluids was shown to be correlated with organoleptic scores made on cooked meat from the same fish and with the time of storage at refrigerator temperatures above freezing. Changes in the physical properties of haddock eye fluids during storage at refrigerator temperatures above freezing are, according to this report, probably due to enzyme action, since there was no evidence that bacterial composition is involved in such changes.

INDUSTRIAL FOOD SERVICES:

Buying Practices and Food Use of Employee Food Services in Manufacturing Plants, by Rosalind C. Lifquist, Marketing Research Report No. 326,

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE ORGANIZATION ISSUING THEM.

139 pp., illus., processed, 75 cents. Marketing Research Division, Agricultural Marketing Service, United States Department of Agriculture, Washington 25, D. C. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.). This report presents data collected during a nationwide survey of inplant facilities conducted in January-February 1956. Nearly 6,000 manufacturing plants with 250 or more employees--about one-half the plants of this size in the United States--provided some type of regular on-premise, food-serving facility for use of plant personnel. The report discusses, among others, these aspects of the survey: collection of data, characteristics of plants with food services; characteristics of food services; purchasing practices; stocks of food on hand; and expenditures for and use of various types of food. A large section of the report contains statistical tables showing results of the survey. The section on fish and shellfish mentions that proportionally over 8 out of 10 inplant food services used some kind of fishery product during the survey period with about three-fourths of the facilities making purchases at least once a week.

Employee Food Services in Manufacturing Plants, Marketing Research Report No. 325, 102 pp., illus., processed, 50 cents. Marketing Research Division, Agricultural Marketing Service, U. S. Department of Agriculture, Washington 25, D. C., June 1959. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.) Expenditures for food represent a large part, in some cases the single most important part, of the purchases of American families. Recent years have witnessed marked changes in consumption patterns, one of these being the greatly increased practice of eating away from home. This report presents the results of a study of one segment of the "away from home" food market: the food facilities which manufacturing plants provide for their employees. Data on the utilization of fish and shellfish products are included.

INSTITUTIONAL FOOD SERVICES:

Policies and Practices of Some Leading Institutional Wholesale Grocers, Marketing Research Report No. 335, 43 pp., illus., processed, 25 cents. Marketing Research Division, Agricultural Marketing Service, U. S. Department of Agriculture, Washington 25, D. C., June 1959. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.) An increasing share of the Nation's food is being marketed by food service establishments such as restaurants, cafeterias, hotels, schools, and other away-from-home eating places, according to this report. One fourth of consumer's food dollar on average is spent for food served away from home. In this survey, case studies were made of nine selected wholesaling firms whose annual sales to food service operators ranged from slightly less than $1 million to almost $5 million.

IRRADIATION PRESERVATION:

'Storage Characteristics of Some Irradiated Foods Held at Various Temperatures Above Freezing. I--Studies with Chicken Meat and Sweet Potatoes," by J. L. Licciardello, J. T. R. Nickerson, B. E. Proctor, and C. L. Campbell, article, Food Technology, vol. 13, no. 7, July 1959, pp. 398-404, illus., printed. Food Technology, The Garrard Press, 510 No. Hickory, Champaign, Ill.

'Storage Characteristics of Some Irradiated Foods Held at Various Temperatures Above Freezing. II--Studies with Pork Sausage and Scallops," by J. J. Licciardello, J. T. R. Nikerson, B. E. Proctor, and C. L. Campbell, article, Food Technology, vol. 13, no. 7, July 1959, pp. 405-409, illus., printed. Food Technology, The Garrard Press, 510 No. Hickory, Champaign, Ill. Storage studies were carried out with irradiated pork sausage and scallops held for 8 to 10 months at temperatures ranging from 50° F. to 125° F. Even after 8 months' storage at 50° F., irradiated pork sausage was considered acceptable in flavor. At storage temperatures of 68° F. or above, irradiated samples became unacceptable within 2 months. Irradiated scallops were considered to be acceptable after 10 months' storage at 50° F. or 68° F.; however, a marked deterioration in quality occurred within one month in samples held at 125° F. Non-enzymatic browning, which caused off-flavor and color degradation, played the principal role in deterioration of irradiated scallops during storage, but texture losses also occurred. In regard to irradiated pork sausage, texture change and associated off-flavors due to proteolytic enzyme action chiefly contributed to loss of quality. Color changes and fat oxidation also occurred.

JAPAN:

Export Inspection System of Japan, World Trade Information Service, Part 2, No. 59-45, 8 pp., printed, 10 cents. U. S. Department of Commerce, Bureau of Foreign Commerce, Washington, D. C. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C., and by U. S. Department of Commerce Field Offices.) Describes the structure of Japan's export inspection system as established on February 1, 1958, by a new Export Inspection Law which makes export inspection mandatory for 145 major categories of goods including frozen marine products, dried aquatic products, salted aquatic products, fish-liver oil, agar-agar, fish meal and fish scrap, seed oyster, and canned foods. Published as an aid to the United States importer, this report covers: the role of inspection, improvement in inspection, inspection organizations, designated commodities, inspection procedures, using the system, trade disputes arising over quality, and protecting the buyer. An appendix lists designated export inspection commodities.

LIGHT FISHING:

"La Pêche a la Lumiere--Les Essais de l'Institut Scientifique des Peches" (Light Fishing--Experiments of the Scientific Fisheries Institute), by G. Kurc and A. Percier, article, France Pêche, no. 31, July-August 1959, pp. 34-42, illus., printed in French. France Peche, B. P. 179, Lorient, France.

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MARINE ALGAE:

"Paper Chromatographic Study on Sugar Component of Red Algae," by Takehiko Nakamura, article, Bulletin of the Japanese Society of Scientific Fisheries, vol. 23, nos. 7 and 8, 1957, illus., printed in Japanese with English abstract, table, and figure. Japanese Society of Scientific Fisheries, c/o Tokyo University of Fisheries, Shiba-kaigandori 6-chome, Tokyo, Japan.

"Some Algae from Clipperton Island and the Danger Islands," by E. Yale Dawson, article, Pacific Naturalist, vol. 1, no. 7, June 30, 1959, 7 pp., illus., printed, Beaudette Foundation for Biological Research, Box 482, R. F. D. 1, Solvang, Calif.

"William H. Harvey's Report on the Marine Algae of the United States North Pacific Expedition of 1853-1856," by E. Yale Dawson, article Pacific Naturalist, vol. 1, no. 5, March 19, 1959, 39 pp., illus., printed. Beaudette Foundation for Biological Research, Box 227, R. F. D. 1, Solvang, Calif.

NEW ENGLAND:

The New England Fisheries Industry, by Harvey R. Sherman, 56 pp., processed, very limited distribution. Legislative Reference Service, U. S. Library of Congress, Washington 25, D. C. A brief survey of its economic state, its problems, and some possible measures for its improvement.

NORWAY:

Årsmelding 1957 fra Fiskeridirektoratets Kjemisk-Tekniske Forskningsinstitutt (1957 Annual Report from the Fisheries Directorate of the Chemi-Technological Research Institute), no. 3, 54 pp., illus., printed in Norwegian with English summary. Kjemisk-Tekniske Forskningsinstitutt, Bergen, Norway, 1958.

"Lofotfiskets Lönnsomhet 1958" (Value of Lofoten Fisheries, 1958), by Georg Oppendal, article, Fiskets Gang, vol. 45, no. 21, May 21, 1959, pp. 302-312, illus., printed in Norwegian. Fiskets Gang, Postgiro Nr. 691 81, Bergen, Norway.

Naeringsverdi og Vitaminer i Norsk Fisk og Fiskevarer (Nutritional Values and Vitamins of Norwegian Fish and Fish Products), by Torleiv Taarland, Erling Mathiesen, Øydis Øvsthus, and Olaf R. Broekkan, 8 pp., illus., printed. (Reprinted from Tidsskrift for Hermetikkindustri, no. 11, 1958, pp. 405-412.) Trykt I, Aktietrykkeriet I, Stavanger, Norway.

"Vitaminer i Norsk Fisk III--Vitaminer i Forskjellige Organer fra de Viktigste Torskefisker (Gadidae) Fanget Langs Norskekysten" (Vitamins in Norwegian Fishes. III--Vitamins in Different Organs from the Most important Gadus-Fishes (Gadidae) Caught off the Coast of Norway), by Olaf R. Braekkan, article, Fiskeridirektoratetes Skrifter, Serie Teknologiske Undersokelser, vol. III, no. 6, pp. 1-32, illus., printed in Norwegian with English summary. The Director of Fisheries, Bergen, Norway, 1958.

OYSTER DRILL:

Burial as a Method for Control of the Common Oyster Drill, UROSALPINX CINEREA, of Long Island Sound, by V. L. Loosanoff and C. A. Nomejko, 7 pp., illus., printed. (Reprinted from Proceedings of the National Shellfisheries Association, vol. 48, 1958, pp. 83-89.) John B. Glude, Secretary-Treasurer, National Shellfisheries Association, Bureau of Commercial Fisheries, U. S. Department of the Interior, Washington 25, D. C.

PARASITES:

Studies on Helminth Parasites from the Coast of Florida. IV. Digenetic Trematodes of Marine Fisheries of Tampa, Boca Ciega Bays, and the Gulf of Mexico, by Franklin Sogandares-Bernal and Robert F. Hutton, Contribution Number 16, 15 pp., illus., printed. The Florida State Board of Conservation Marine Laboratory Maritime Base, Bayboro Harbor, St. Petersburg, Fla.

POLLOCK:

"Nitrite Preservation of Pollock," by G. A. Dolbish and M. G. Syromyatnikova, article, Rybnoe Khoziaistvo, vol, 34, no. 6, 1958, pp. 55-58, printed in Russian. Kotel 'nicheskaia Naberezhiaia D 1/15, Souizpechati Otdelu "Zhurnal-Pochtoi," Moscow, Zh-240, U. S. S. R.

PROTEINS:

"Protein in Fish Muscle. 12--Ultracentrifuge Studies on Post-Rigor Extracts of Structural Protein," by D. G. Ellis and P. M. Winchester, article, Journal of the Fisheries Research Board of Canada, vol. 16, January 1959, pp. 33-41, printed. Queen's Printer and Controller of Stationery, Ottawa, Canada.

"Proteins in Fish Muscle. 13--Lipid Hydrolysis," by W. J. Dyer, and Doris I. Fraser, article, Journal of the Fisheries Research Board of Canada, vol. 16, January 1959, pp. 43-52, printed. Queen's Printer and Controller of Stationery, Ottawa, Canada.

PURSE SEINES:

"Model Experiments on the Sardine Purse Seine Operating in Hyuganada, V.," by Yunosuke Itaka, article, Bulletin of the Japanese Society of Scientific Fisheries, vol. 23, no. 9, 1958, pp. 511-513, illus., printed in Japanese with English abstract, figures, and table. Japanese Society of Scientific Fisheries, c/o Tokyo University of Fisheries, Shiba-kaigandori 6-chome, Tokyo, Japan.

QUALITY:

"Chromatic Reaction for Deciding Fish Freshness II," by Elvira Cavallone, article, Atti Societa Italiana delle Scienze Veterinarie, vol. 11, 1957, pp. 635-638, printed in Italian. Societa Italiana delle Scienze Veterinarie, Stabilimento Grafico, F. LLi. Lega, Faenza, Italy.

"The Determination of Volatile, Permanganate-Reducing Substances in Sea Fish, a Useful Method for the Objective Estimation of Quality,

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by H. Wittfogel, article, Fishchwaren und Feinkost-Industrie, vol. 30, 1958, pp. 4-8, printed in German. Fachblatt fur Alle Betriebszweige der Fischverwertungstechnik, Verlag Elbe-Weser, Dr. Seyfarth & Co., Fernsprecher 4101, Bremerhaven F., Germany.

"Improvement in Quality of Iced White Fish Preservative Ices," article, Food Investigation 1957, Report of the Food Investigation Board (Great Britain), 1958, pp. 4-5, printed. Her Majesty's Stationery Office, York House, Kingsway, London E. C. 2, England.

SALMON:

The Acid-Soluble Nucleotides of Salmon Liver, by H. Tsuyuki, Violet M. Chang, and D. R. Idler, Studies 1957 from the Stations of the Fisheries Research Board of Canada, FRB No. 522, 9 pp., printed. Queen's Printer and Controller of Stationery, Ottawa, Canada.

SALT FISH:

"Mold Contamination in Salt Fish and Method of Control," by H. P. Dussault, article, Progress Reports of the Atlantic Coast Stations, No. 71, December 1958, pp. 13-15, printed. Fisheries Research Board of Canada, Atlantic Fisheries Experimental Station, Halifax, Nova Scotia, Canada.

SANITATION:

"Chlorinated Sea Water Cleans and Sanitizes Fish Holds," by Joseph W. Slavin, article, Fishing Gazette, vol. 76, January 1959, pp. 21-26, printed. Fishing Gazette Publishing Corp., 461 Eighth Ave., New York 1, N. Y.

SARDINES:

"Integration of Organized Food Technology into a System for Maine Sardine Production Control," by Berton S. Clark, article, Food Technology, vol. 13, no. 6, June 1959, pp. 289-293, illus., printed, single copy--domestic $1.50, foreign $1.75. (Published by the Institute of Food Technologists.) The Garrard Press, 510 North Hickory, Champaign, Ill. The relatively new research and quality control program of the Maine sardine industry is presented. The author describes the research phase of the program which was inaugurated early in 1954. Immediate action was taken to develop basic information concerning the technology of production operations and to devise a grading procedure to measure the quality of the product. The quality grading phase of the program was maintained on a voluntary basis throughout the 1955, 1956, and 1957 seasons and numerous quality improvements were made by commercial application of the technological principles disclosed by the investigations, coupled with analysis of a mounting volume of quality grade data. The author states that, "The State of Maine and all associated with this enterprise can take pride in having upgraded not only a product but also an industry."

SEA NETTLES:

"Nettles of the Sea," by Romeo Mansueti, article, Nature Magazine, vol. 52, no. 6, June-July 1959, pp. 293-295, illus., printed, single copy 50 cents. American Nature Association, 1214 16th St., NW., Washington 6, D. C. Discusses the life history, which is still much of a mystery, and habits of two varieties of the sea nettle, Dactylometra quinquicirrha. Throughout its range from southern New England to Brazil, the sea nettle prefers the quiet brackish waters of shallow bays, estuaries, and other inland Atlantic waterways; rarely is it encountered in large numbers in the open ocean.

SEAWEED:

(Institute of Seaweed Research) Annual Report for 1958, 23 pp., printed. Institute of Seaweed Research, Inveresk, Midlothian, Scotland. This report covers the activities of the Institute during 1958, its information and technical assistance services, and ecological research studies. It also gives a summary of the work carried out under extramural contract and on a collaborative basis during 1958 covering algal chemistry, plant physiology, microbiology, and other applications of seaweed and algal chemicals.

"A New Gigartinoid Grateloupia (Red Algal) from Hawaii," by E. Yale Dawson, article, Pacific Naturalist, vol. 1, no. 1, December 17, 1958, 4 pp., illus., printed. Beaudette Foundation for Biological Research, Box 227, R. F. D. 1, Solvang, Calif.

SHARKS:

The Florida Shark Story, by Robert F. Hutton, Educational Series No. 13, 35 pp., illus., printed. Florida State Board of Conservation Marine Laboratory, Maritime Base, Bayboro Harbor, St. Petersburg, Fla., March 30, 1959. Presents the results of a survey to determine as many facts as possible about sharks in Florida waters, their danger to swimmers, and precautionary measures against the sharks. Records of shark attacks, kept since about 1919, indicate an average of less than one unprovoked shark attack per year. The attacks are most likely to occur during the months of June and July. Hungry, vicious, injured or trapped sharks are most likely to attack man. According to current information, only 11 species of sharks in Florida waters are considered to be dangerous or potentially dangerous. Swimmers are advised to avoid areas where fish have recently been cleaned and to swim in groups rather than alone.

SHRIMP:

Investigations on the Parasites and Diseases of Saltwater Shrimps (Penaeidae) of Sports and Commercial Importance to Florida (Preliminary Report), by Robert F. Hutton, Franklin Sogandares-Bernal, Bonnie Eldred, Robert M. Ingle, and Kenneth D. Woodburn, Technical Series No. 26, May 5, 1959, 36 pp., illus., printed. Director, State Board of Conservation, Tallahassee, Fla. This investigation was supported in part by a U. S. Public Health Service grant. A historical review of published works dealing with the parasites and diseases of penaeid shrimps from the Gulf of Mexico is presented. A brief description of several parasites is given. Geographical localities of the hosts, as well as

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locations of the parasites in the hosts, are included. Evidence indicating incidence of infection by the various parasites and the possible use of certain shrimp-parasites as migratory "tags" are discussed.

A Report on the Shrimps (Penaeidae) Collected from the Tortugas Controlled Area, by Bonnie Eldred, Special Scientific Report No. 2, 8 pp., processed. Florida State Board of Conservation Marine Laboratory Maritime Base, Bayboro Harbor, St. Petersburg, Fla., May 1959. Concern that the taking of small shrimp from the Tortugas shrimping grounds might possibly jeopardize the production from this area prompted the Florida legislature in 1957 to enact a law which designated a portion of the grounds which was associated with small shrimp and possibly a nursery area, to be controlled and investigated. In accordance with this law, the State Board of Conservation was directed to carry out periodic shrimp sampling in this Tortugas controlled area to obtain information on the frequency and abundance of undersized shrimp. The investigation was started during November 1957. This report presents details of findings on the pink shrimp and seven additional species of this family in the Tortugas controlled area, in the subsequent 12 months period.

The Shrimp Fishery of the Gulf of Mexico (Rio Grande River to St. Marks, Florida), Informational Series No. 2, 5 pp., printed. Gulf States Marine Fisheries Commission, 312 Audubon Bldg., New Orleans 16, La., March 1959. Presents biological notes on the brown shrimp and the white shrimp; recommendations on closed seasons--nursery areas, offshore waters, and size limit; and recommendations on night fishing, gear, and bait shrimp.

SMOKED FISH:

"Technology of Smoked Foods," by W. W. Foster, article, Food Manufacture, vol. 34, February 1, 1959, pp. 56-61, printed. Food Manufacture, Leonard Hill, Ltd., Stratford House, 9 Eden Street, London N. W. 1, England.

SPERM OIL:

"Sperm Oil, Some Possible Uses," by Enrico Wahnon, article, Ingegneria Chimica, vol. 38, 1956, pp. 107-118, printed in Italian. Ingegneria Chimica, Negroli 51, Milan, Italy.

SQUID:

"Preservation of the Squid (Loligo vulgaris) Topographical Distribution of its Enzymes," by Enrique Castella Bertran, T. Perez Garcia, A. Alvaro Pascual, and R. Ballesteros, Anales del Instituto de Investigaciones Veterinarias, vol. 7, 1955-56, pp. 83-91, printed in Spanish with English and German summaries. Instituto de Investigaciones Veterinarias, Universidad de Madrid, Madrid, Spain.

TARIFFS AND TRADE:

Operation of the Trade Agreements Program, 11th Report, July 1957-June 1958, 361 pp., processed. Secretary, U. S. Tariff Commission, Washington 25, D. C., 1959. During the period covered by the report, the Contracting Parties to the General Agreement on Tariffs and Trade did not sponsor any multilateral tariff negotiations of the Geneva-Annecy-Torquay type. Shortly before the close of the period, however, they commenced negotiations with Switzerland looking toward its provisional accession to the General Agreement. The United States engaged in limited trade-agreement negotiations with Brazil, Austria, Canada, Ceylon, Greece, and the Union of South Africa. Other developments include the new legislation relating to the extension of the President's authority to conclude trade agreements; the proposed legislation concerning United States participation in the Organization for Trade Cooperation; the establishment by Executive Order of the Cabinet-level Trade Policy Committee; the major developments relating to the general provisions and administration of the General Agreement; the actions of the United States relating to its trade agreements program; and the changes made in tariffs, exchange controls, and quantitative trade restrictions by countries with which the United States has trade agreements.

United States Import Duties, 1958, Miscellaneous Series, TC 1.10:Im7/4/958, 364 pp., processed, $3. United States Tariff Commission, Washington 25, D. C. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.) Presents schedules of articles subject to duty and of articles free of duty as of July 1, 1958. Contains a section on fish and shellfish products under Schedule 7--Agricultural Products and Provisions.

TERRITORIAL SEA:

"Measurement of the U. S. Territorial Sea," by G. Etzel Pearcy, article, The Department of State Bulletin, vol. 40, no. 1044, June 29, 1959, pp. 963-971, illus., printed. Public Services Division, Bureau of Public Affairs, U. S. Department of State, Washington 25, D. C. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.). Discusses the methods for and significance of careful delineation of the United States territorial seas. The United States traditionally recognizes a zone of 3 nautical miles in breadth, giving it a territorial sea slightly larger than the combined areas of Massachusetts, Connecticut, Rhode Island, and New Jersey. Definite knowledge as to whether any given offshore point lies in or beyond the territorial sea may be of the utmost consequence. In order to have the territorial sea charted as exactly 3 miles in breadth at any point along the coast, the following rule must be observed: every point on the outer limit of the territorial sea must be plotted precisely 3 nautical miles from the nearest point on the coast along which it is measured. Fishing rights within the territorial sea are restricted to the coastal state, but beyond it the general principle of freedom of fishing pertains. There is much discussion throughout the world relative to a territorial sea with a breadth greater than 3 miles. In March or April 1960 a United Nations conference is sched-

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uled to convene at Geneva in an effort to settle, among other issues, a territorial sea with a breadth acceptable to all states.

TRADE AGREEMENTS:

Third Annual Report of the President of the United States on the Trade Agreements Program, 77 pp., printed. The White House, Washington, D. C., June 1959. The third annual report on the operation of the Trade Agreements Program. The following subjects are discussed: (1) 1958 trade developments; (2) the trade agreements program and the GATT; (3) regional integration; (4) U. S. tariff negotiations; (5) the safeguarding procedures of the trade agreements program; (6) restrictions against U. S. exports; and (7) the 1958 extension of U. S. trade agreements legislation. Also includes a report to the Secretary of State by the Chairman of the United States Delegation to the Thirteenth Session of the Contracting Parties to the General Agreement on Tariffs and Trade held at Geneva, Switzerland, October 16-November 22, 1958; and a report on relaxation of quantitative restrictions against United States exports.

TRADE LISTS:

The Office of Economic Affairs, Bureau of Foreign Commerce, U. S. Department of Commerce, Washington 25, D. C., has published the following mimeographed trade lists. Copies may be obtained by firms in the United States from that office or from Department of Commerce field offices at $2 each.

Oils (Animal, Fish, and Vegetable)--Importers, Dealers, Producers, Refiners, and Exporters, Costa Rica, 6 pp. (June 1959). Lists the names and addresses, size of firms, and types of products handled by each firm. Includes firms dealing in fish oils.

Oils (Animal, Fish, and Vegetable)--Importers, Dealers, Producers, Refiners, and Exporters--Mexico, 26 pp. (July 1959). Lists the names and addresses, size of firms, and types of products handled by each firm. Includes firms dealing in fish oils.

Oils (Animal, Fish, and Vegetable)--Importers, Dealers, Producers, Refiners, and Exporters--United Kingdom, 17 pp. (June 1959). Lists the names and addresses, size of firms, and types of products handled by each firm. Includes firms dealing in fish oils.

TUNA:

'La Campagne 1959 de l'Albacore en Afrique Occidentale" (The 1959 West African Campaign for Tuna), by Alain de Torquat, article, La Pêche Maritime, vol. 38, no. 974, May 1959, pp. 261-262, illus., printed in French. La Peche Maritime, 190 Boulevard Haussmann, Paris, France.

'Canned Tuna. I--Determination of Various Components in Canned Tuna; II--pH Determination of Canned Tuna Liquids," by Masayuki Kochi and Shitoku Era, article, Norinsho Suisan Koshusho Kenkyu-Hokuku (Journal of the Shimonoseki College of Fisheries), vol. 7, 1957, pp. 33-43, printed in Japanese with English titles and abstracts. Ministry of Agriculture and Forestry, Marine Products Training Center, Shimonoseki, Japan.

'Quatrieme Port Thonier de France, les Sables d'Olonne Preparent la Prochaine Campagne Avec Optimisme" (Sables--d'Olonne, the Fourth Tuna Port of France, Makes Optimistic Preparations for the Next Season), article, La Peche Maritime, vol. 38, no. 974, May 1959, pp. 263-264, illus., printed in French. La Peche Maritime, 190 Boulevard Haussmann, Paris, France.

'Que nous Reserve l'Avenir de Notre Peche Thoniere?" (What does the Future Hold for Our Tuna Fishery?), by Andre Dhellemmes, article, La Peche Maritime, vol. 38, no. 974, May 1959, pp. 257-260, illus., printed in French. La Peche Maritime, 190 Boulevard Haussmann, Paris, France.

'Regards sur la Campagne Thoniere en Cote Basque" (A Look at the Tuna Campaign along the Basque Coast), by G. Pommereau, article, La Peche Maritime, vol. 38, no. 974, May 1959, p. 265, illus., printed in French. La Peche Maritime, 190 Boulevard Haussmann, Paris, France.

VITAMINS:

"A Comparative Study of Vitamins in the Trunk Muscles of Fishes," by Olaf R. Braekkan, article, Fiskeridirektoratets Skrifter, Serie Teknologiske Undersökelser, vol. III, no. 8, 1959, pp. 1-42 and 4 plates, illus., printed. The Director of Fisheries, Bergen, Norway.

WAGE LAWS:

State Minimum-Wage Laws and Orders, Women's Bureau Bulletin 267: Part 1--"Historical Development and Statutory Provisions," 31 pp. plus charts, printed, 75 cents; Part 2--"Analysis of Rates and Coverage," 142 pp., printed, 60 cents. An analysis of the Puerto Rico law has been issued as an addendum to Part 2, 18 pp., printed, 20 cents. U. S. Department of Labor Women's Bureau, Washington, D. C. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.) This three-section report, covering the 16-year period, 1942 to 1958, is the latest in the Women's Bureau series on state minimum wage laws and orders.

WHALE OIL:

'Studies on the Whale Oil. XIII--The Composition of Fatty Alcohols in the Pacific Beaked Whale Blubber Oil," by Masamichi Saiki, Shinchen Gang, and Takajiro Mori, article, Bulletin of the Japanese Society of Scientific Fisheries, vol. 24, nos. 6 and 7, 1958, pp. 578-580, illus., printed in Japanese with English abstract and tables. Japanese Society of Scientific Fisheries, c/o Tokyo University of Fisheries, Shibakaigandori 6-chome, Tokyo, Japan.

WHALING:

Whaling--Amendments to the Schedule to the International Whaling Convention Signed at Wash-

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ington on December 2, 1946, Treaties and Other International Acts Series 4193, 4 pp., printed, 5 cents. Department of State, Washington 25, D. C., 1959. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.). Presents the amendments adopted at the Tenth Meeting of the International Whaling Commission, London, June 23-27, 1958.

HELICOPTER USED TO TAKE SEAL CENSUS

The census of 14,000 seals and sea lions was taken by two scientists of the University of California, Los Angeles, in the spring of 1959. The U. S. Air Force and Navy cooperated in the project.

A majority of the census population was made up of California sea lions, which numbered 13,000, a 13-fold increase since the '30's.

The elephant seal which was once brought to the brink of extinction by commercial hunters is making a strong comeback and now numbers in excess of 400, possibly as high as 683. Steller sea lions which numbered 2,000 in 1938 are now down to about 50. The population of harbor seals appears to be about 100.

Two other seals, the Guadalupe fur seal and the Alaska fur seal are known to occur in southern California waters, but none were seen during the census.

It is thought that the rapid increase of the California sea lion and decrease of the Steller sea lion may be due to a warming of the water, resulting in distribution changes of critical food species of fish and invertebrates which are relatively sensitive to such temperature changes. The two varieties of seals are known to have somewhat different food preferences.

The census was taken using aerial photographs in the channel islands of San Nicolas, Anacapa, Santa Barbara, Santa Cruz, Santa Rosa, and San Miguel.

The largest single population observed was on San Miguel, where 8,009 California sea lions, 34 Steller sea lions, 15 harbor seals, and 320 elephant seals were photographed during one observation. (Science News Letter, June 13, 1959.)

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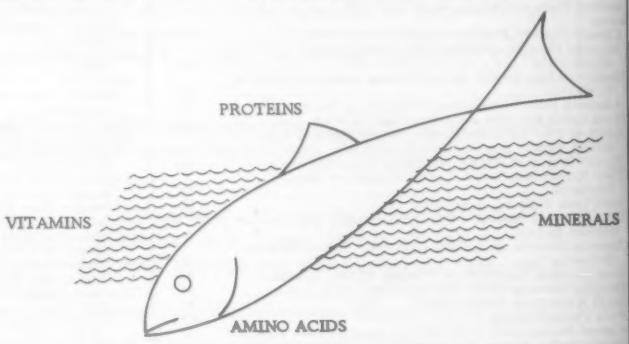
BETTER MEALS BUILD BETTER FAMILIES

"Better Meals Build Better Families" was the theme of a vigorous nation-wide Food-Industry Promotion which climaxed during the period September 14-16, 1959. This promotion, reported to be one of the most powerful single merchandising opportunities made available to food advertisers, was conceived by the Bureau of Advertising of the American Newspaper Publishers Association.

The newspaper participating in this ambitious undertaking supported the two-week campaign with ads which ran into thousands of pages and hundreds of thousands of lines of advertising copy. Added to this was the potent point-of-purchase support of the retail food industry, the advertising and merchandising support of food manufacturers, and the promotional activities of wholesalers and brokers.

"Better Meals" means nutritionally-balanced meals. A nutritionally-balanced meal is one which supplies the body's requirements for protein, fat, essential minerals and vitamins. Fishery products are a source of animal protein. Such proteins are nutritionally complete. They are easily digestible and readily available to the body for construction and repair of body tissue. They contain generous quantities of each of the essential amino acids necessary to good health.



Fish oils are uniquely well fortified with more of the unsaturated fatty acids than are vegetable fats or land-animal fats. Fish fat is easily digested and readily used by the body tissues. Those fatty acids tentatively classed as being essential include linoleic, linolenic, and arachidonic. These three essential fatty acids are necessary in the diet to permit growth, and reduce skin disorders.

Fish, within the approximate 240 marketed varieties and their numerous market forms, supply to the diet any degree of fat desired, whether it be that of such species as the very lean cod, haddock, halibut, or shrimp; or that of the numerous intermediate group composed of such species as salmon, tuna, oysters, crab, lobster, yellow perch, or flounder.